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POPULAR Computing WEEKLY

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Atari price cuts: 1040 follows 520STFM

Hewson's budget range – more details

Commodore 64 autumn bundles finalised

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Games consoles

Sega, Nintendo and Atari lined up for autumn launch

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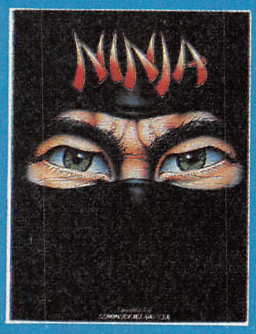
Desktop publishing

Learning Lisp

Quicksilva takes The Tube

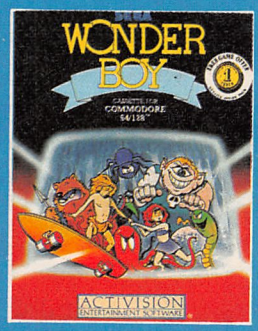
ATARI COMMODORE SPECTRUM

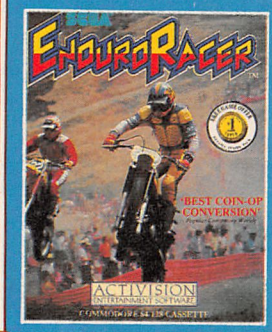
WOOLWORTHS TOP 30 COMPUTER SOFTWARE



AUGUST 1987

POSITION	TITLE	SOFTWARE HOUSE	MACHINE TYPE	PRICE
1.	Last Ninja	System 3	CBM	9.99
2.	Barbarian	Palace	Spectrum	9.99
3.	Enduro Racer	Activision	Spectrum	9.99
4.	Wonderboy	Activision	Spectrum	9.99
5.	6 Pack	Elite	Spectrum	9.95
6.	Barbarian	Palace	CBM	9.99
7.	Paperboy	Elite	Amstrad	8.95
8.	6 Pack	Elite	CBM	9.95
9.	Wonderboy	Activision	CBM	9.99
10.	World Class Leaderboard	U.S. Gold	CBM	9.99
11.	Army Moves	Ocean	Spectrum	7.95
12.	World Games	U.S. Gold	Spectrum	8.99
13.	Road Runner	U.S. Gold	Spectrum	8.99
14.	F15 Strike Eagle	Microprose	Spectrum	9.95
15.	Gauntlet	U.S. Gold	Spectrum	8.99
16.	Big 4	Durrell	CBM	9.95
17.	Game Over	Ocean	Spectrum	7.95
18.	Metro Cross	U.S. Gold	Spectrum	8.99
19.	Road Runner	U.S. Gold	CBM	9.99
20.	Leaderboard	U.S. Gold	Spectrum	9.95
21.	Game Over	Ocean	CBM	8.95
22.	Living Daylights	Domark	Spectrum	9.95
23.	Trio	Elite	Spectrum	9.95
24.	Konami Coin Op	Imagine	Spectrum	9.95
25.	Living Daylights	Domark	CBM	9.95
26.	Trio	Elite	CBM	9.95
27.	Paperboy	Elite	Spectrum	7.95
28.	Konami's Coin Op's	Imagine	CBM	9.95
29.	Quartet	Activision	CBM	9.99
30.	6 Pack	Elite	Amstrad	9.95





WOOLWORTHS

A Great Deal in Entertainment

VISA

* At selected larger stores. Mastertronic games at £1.99 and £2.99

* Items subject to availabilty

AMSTRAD COMMODORE SPECTRUM ATARI

POPULAR Computing WEEKLY

August 14–20

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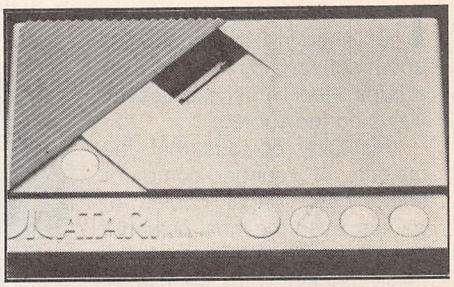
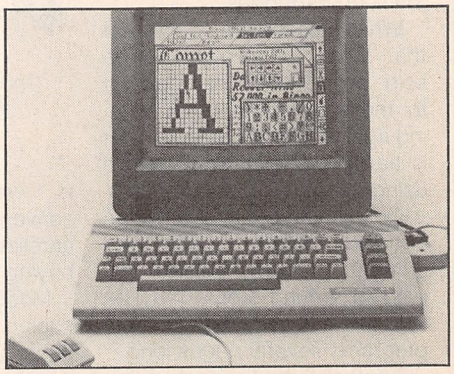
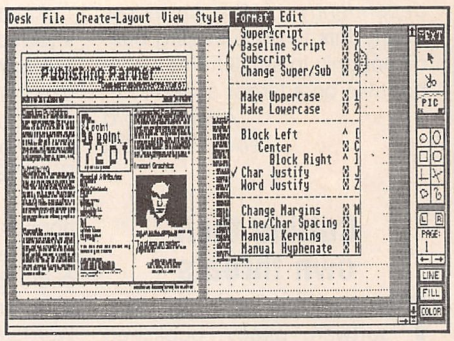
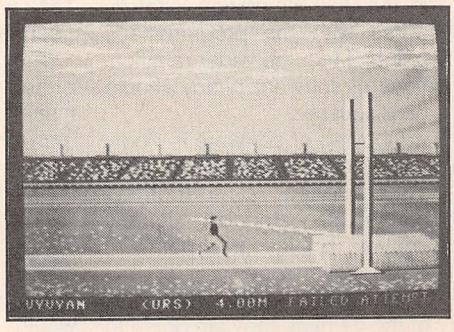




Top: Atari's XE Games System. Above: AMS's Stop Press and AMX mouse. Below: Publishing Partner from Softlogik. Bottom: Spy vs Spy, now available for the BBC and C16.





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ABC

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LETTERS

Encouraging piracy

I read with interest the letter published in *Popular*, July 31, about software piracy and user groups. I feel I must express my views on the subject.

It is fairly obvious that the majority of younger computer users have illegal copies of games. Even the most powerful of tape based software can be easily copied with the use of 'back-up cartridges'.

What amazes me is the fact that these are allowed to be sold, even though each advert for these cartridges has a warning against illegal copying. That is hardly going to stop people using it for an illegal purpose.

One simple press of a button and the program is transferred straight to disc. Copies get passed around, some may be sold and it is easy to get lists of programs several pages long.

Another thing I cannot understand is the fact that on all these back-up cartridges adverts, it clearly states that the back-ups can be accessed *independently* of the cartridge. Surely this is encouraging piracy not only in small home users but also on a larger scale.

Adrian Soord
Yeovil, Somerset

Cutting their own throats

Following the letter regarding software piracy, published in the July 31 edition. I totally agree with the programmer's points. I feel the wider ramifications of software piracy should be discussed.

Copying of software is illegal and the law has now been strengthened. Unfortunately nothing can stop little Johnny copying his favourite game to give to his friends.

If they only sat down to think of the damage they are doing to the industry. For every copy they make they are denying the programmer their living. If it continues, it will not be worth the effort to produce new titles. We will then be lumbered with old style games and conversions. They are cutting their own throats, just as video pirates are destroying the movie industry.

I am not saying I am a saint, far from it, while at college I must have copied five major packages. The only difference

"This is our new promotional literature for the ST"

is I was only using them for convenience, the hard disc was unreliable, and I would not be buying them anyway.

Most business software is copied because of its high price. The software houses say it is because they sell so few packages, in some cases this is true, but have they ever thought if the price was lower they would sell more products.

Amstrad with its PC1512 showed the world that business software did not have to be so expensive, for example, *Wordstar* on an IBM costs around £200, but *Wordstar 1512* on the PC1512 costs only £55.

This clearly shows software houses were selling packages for the maximum price they could get. By the way anyone with an IBM wishing to buy *Wordstar* should note *Wordstar 1512* will not work on a IBM, it's been fixed!

The various forms of copy protection around today may make life a little harder for the 'professional copier' but that's all. It is the legitimate user that is penalised. It makes life harder by having to have the master disc in one drive when using a copy. I make copies in case of damage to the master disc; how would the above protection method deal with that?

I think copy protection is a waste of time, since it will not stop the determined copier. Education is required. Computer users should be made aware of what they are doing.

The attitude, especially at college, is to see who can make a copy first, which is good fun as long as the copy is not used illegally. I feel sure once users know the damage they are doing, most will stop. But it is also up to the software houses to charge a reasonable price for their products.

To conclude, copying software may seem like harmless fun, but it is theft and will in time destroy the industry. The new Bond movie, *The Living Daylights*, was sold on pirate video weeks before it was even released. Hopefully software houses will charge fair prices for products, I know some have to be expensive but not all. Until then I feel copying will never die.

Trevor Monahan
Skegness

Bringing CAT out of the bag

Thanks for publishing my CAT program for the QL in issue 30. However, the instructions provided with the listing are poor, and make no mention of the second command, DEVICE which is essential if you wish to use CAT with your discs. Here are clearer instructions.

CAT can be invoked in three ways – 'CAT drive, channel', 'CAT drive', or simply 'CAT'. Where a parameter is not given, the last value given is used. On loading, the values for 'drive' (where the directory is taken from) and 'channel' (the channel where the output is sent to) both default to one.

DEVICE is used to configure CAT to work with various QL devices:
'DEVICE 1' to use CAT with MDVs (microdrives) (default on loading),
'DEVICE 2' to use CAT with FLPs (discs),
'DEVICE 3' to use CAT with FDKs (discs), or
'DEVICE 4' to use CAT with RAMs (ram discs).

I hope that these instructions will be of use to anyone who is having problems in using my program.

David Stewart
Kilwinning, Ayrshire

Curing the PCW printer

I have come across the problem with the Amstrad PCW printer described by Mrs Lomas (Letters, July 17), ie, unwanted underlining and hyphens through the text at least a dozen times.

It has never failed to be cured simply by pushing the flat multiway printer connector more firmly into its socket in the back of the monitor.

It can be a bit stiff, which, I suppose, is why the problem tends to arise.

Tony Johnson
Clarity Guides, Devon

From graffiti to respectability

I am writing to congratulate Paul McKinley on his excellent series of articles on graphics packages.

I have an Amiga and *Deluxe Paint* and until I had read the graphics features, all I had managed to do with it was scrawl my name on the screen, graffiti-style.

But I was inspired by Paul's series to draw some decent pictures and using his guidelines I have managed to knock up some respectable copies of graphics from Rainbird's *Guide of Thieves*. Thanks for an excellent and useful feature.

Gary Whitton
London E4

A question of Forth

I would be grateful if you could answer the following questions.

Where can I get binders for your magazine?

Where can I obtain a manual for a Brother MR5 printer?

Do you have the address for any British Forth user groups?

K Scott
Ringwood, Hants

Binders can be ordered from *Popular Computing Weekly* (binders), 12-13 Little Newport Street, London WC2H 7PP.

Brother's address and number is Jones and Brother, Shepley Street, Audenshaw, Manchester M21 5JD, 061-330 6531.

Forth user groups: we don't have any information on file here, but there must surely be several out there – please let us know.

Public Domain from Floppyshop

I would like to inform your readers of a new ST use group and public domain library.

We are called Floppyshop ST and have only formed recently. We will be supporting owners of

the ST series of computer and hope to increase the numbers of public domain programs in Britain by encouraging members to donate programs.

We charge a mere £5 a year for membership; this includes a subscription to the club magazine *Floppyshop News*, which is currently published on a bi-monthly basis, although we may consider monthly publication if members support us.

The current issue is eight pages of information, reviews and examples of our artwork.

It is available free as part of our introduction pack from Floppyshop ST Public Domain Library, 50 Stewart Crescent, Northfield, Aberdeen AB2 5SR, with an SAE.

Steve Delaney
Aberdeen

Microdrives: a viable option

Your advice to Mr Davies about Spectrum microdrives (Letters, July 24) could have been misleading. To rig up a Spectrum with the Disciple or Multiface expansion units *and* a disc drive will cost from £150-250.

With the Atari 520STFM coming down to £299, this doesn't sound too good. As to being 'supported' by Amstrad, if you've already bought an Amstrad (or Sinclair) computer, then you've parted with your money and Amstrad won't want to know you anyway.

A few weeks ago I bought an Interface 1, Microdrive and a dozen cartridges for about £50. My Spectrum is mainly used for programming, and I was very impressed with the faster loading times. The microdrives are reliable if you handle the cartridges with care.

If you want a mass-storage device for your Spectrum, there are plenty of alternatives.

G Williamson
Barrow-in-Furness

Amazement over Shauna

Last week, I read your review of the new graphic adventure by Robico, *The Hunt – Search for Shauna*.

Quite frankly, I was amazed. I run an adventure club for BBC and Electron owners and I have personally solved over 120 adventures, so I feel I can comment with some authority.

Having played the adventure to some considerable length, and not just a quick look around locations, I think it is first class.

Robico sets extremely high standards for its adventures and this one is no exception. The price is about right for this type of game and one must bear in mind the market for BBC and Electron is not as big as other computers.

Also one must remember that with the memory limitations of the BBC it is not possible to compare bigger adventures of other computers with this new release.

The graphics I feel are very good indeed, and bear no resemblance to those produced with GAC.

All in all, I would say it was one of the best releases I have seen for a long time.

I know it is all a matter of opinion, and hope you reproduce my letter if only to give readers another point of view.

Harry Bastien
Tilbury, Essex

Shauna: protest continues

The review of *The Hunt – Search For Shauna* published in the July 31 issue of *Popular* was both grossly inaccurate and unfair, and consequently I feel obliged to make the following comments.

The wire frame graphics screen depicted at the head of the review is not a screen shot from *The Hunt* which in fact features superb, atmospheric drawings that appear almost instantaneously on screen. *[Our mistake; clarification appeared August 7 issue. Ed].* The 'instant death' location is so near to the start of the game that it is scarcely tiresome to replay once past the few moves which lead to it.

Cliff Joseph suspects wrongly that the game was written with *The Quill* or *GAC*. It was written by Ian Muriss using his own graphics/text routines which, in my opinion, far surpass the capabilities of the aforementioned utilities, since neither could achieve such illustrated, detailed game play in an adventure of over 100 locations.

The text from past moves is left on screen deliberately so that the player may see what he/she has done before. Mr Joseph may not like this but at least the location pictures match the locations.

Mr Joseph, however, is correct in stating that *The Hunt* is not in the Infocom league. How can it be when Infocom does not write for the BBC, does not limit themselves to memory-based games, does not at the moment use graphics and text, do not produce cassette games and does not retail its adventures at £12.95 disc (nor, of course, at £9.95 cassette)?

Mike O'Leary
Robico, Llantrisant

Wanted: Z88 users

I am currently trying to start a Z88 Users' Club for owners of the new machine from Cambridge Computers. The club will be a spare-time activity, non-profit making and funded from members' contributions.

If any readers own the machine or have an interest in it, the club newsletter will be a forum for ideas, information and programs. For further details please send a stamped self-addressed envelope to Z88 Owners' Club, 68 Wellington Street, Long Eaton, Nottingham, NG10 4NG.

Roy A Woodward
Nottingham

Oric software for sale

You have recently had letters from Oric owners complaining about the lack of Oric software.

Our company was very active in this field a few years ago and we are currently ready to sell all of our stock of 4000 pieces, which consist of roughly 20 titles in various quantities at a very favourable one off price.

Should any distributor be interested, please contact us at Innelec, 110 Bis Avenue du General Leclerc, 93506 Pantin Cedex, France.

D Thebaud
Directeur, Innelec

PS: All software is in English.

We're sorry but *Popular Computing Weekly* cannot guarantee to reply to *all* letters requesting a personal answer. It helps us enormously if readers are prepared to have general queries answered on these pages, so, if possible, please do not send SAEs.

King's side attack

In Game Two of our readers' versus *Colossus* chess tournament. The readers, playing white, have continued their king's side attack by bringing the queen to g5.

Colossus has defended by moving its pawn to f6: kicking the white queen.

Incidentally, our apologies for missing out some of the moves in our game guide a fortnight ago – we've filled in the blanks this week!

Kicking back

What do you think the readers should do next?

Send your suggested move to either Inter-Mediates (*Popular* Chess), Freepost, Sawbridgeworth, Herts CM21 9YA (no stamp needed) *or* *Popular* Chess, Unit 2, The Maltings, Sawbridgeworth, Herts CM21 0PG (with a stamp).

Only one vote per person please, and all entries must reach either address by Wednesday, August 19.

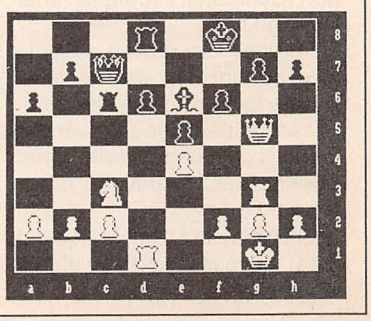
The move which gets the most votes will be entered into the game. Results and *Colossus's* response will be published in two weeks time.

Next week: we return to Game One, where the readers are playing back.

Game Two

The moves so far:

1	Pc2–c4	PC7–c5
2	Ng1–13	Nb8–c6
3	Pd2–d4	Pc5xd4
4	Nf3xd4	Pe7–e5
5	Nd4–b5	Pa7 a6
6	Nb5 d6	Bf8xd6
7	Od1xd6	Od8-l8
8	Qd6–d1	Ng8–e7
9	Nbf–c3	Pd7 d6
10	Bc1–e3	KeB–g8 o-o
11	Bf1-e2	Bc8–d7
12	Ke1-gf o-o	Bf8–C8
13	Od1–d2	Nc6–d4
14	Hal df	Nd4xe2+
15	Nc3–e2	Rc8–c6
16	Be3–g5	Qf6–e6
17	Bg5xe7	Qe6xe7
18	Ne2–c3	Bd7–e6
19	Rft–ef	Qe7–c7
20	Ref–e3	Rf8–c8
21	Re3–d3	Rc8–d8
22	Rd3–g3	Kg8–f8
23	Qd2–g5	Pf7–f6
24	?	



Full price label for Code-Masters

CODEMASTERS is moving into the full-price market with a new label, Codemaster Plus.

The Plus division plans to release titles this autumn for the Christmas market, but the company has not yet decided exactly what its 'full-price' should be.

Codemasters has appointed Bruce Everiss – formerly of Imagine, Tansoft, and Oxford Computer Publishing – to be responsible for the Codemasters Plus range.

Bruce Everiss

"Codemasters is often the first to do something new, and is bringing fresh thought and fresh ideas into the industry," Everiss said last week.

"I've been keeping my eye on the industry, and having got my fingers burnt I am obviously careful about making a move. Codemasters represents exactly what I wanted," he added.

Everiss "got his fingers burnt" in a succession of financial disasters which befell some of his former employers and started his own comapny, Abbott Computer Products, after leaving OCP.

"Bruce has a proven ability to innovate in this marketplace. We are looking to use his unsurpassed experience as a vehicle for our continued growth," said Codemasters' managing director Jim Darling.

Codemasters has enjoyed great success so far with its range of budget titles.

Atari follows up with 1040 price cut

1040 STF: £100 less from next month

ATARI has announced that it is to cut the price of the 1040STF by £100 from September 1. The machine will then cost £499 inclusive, or £599 inclusive with the monochrome monitor.

The announcement comes only weeks after the company revealed plans for a similar reduction on the 520STFM (see *Popular Computing Weekly,* July 17).

That left some Atari dealers less than pleased about their ability to clear stocks before the price cut comes into effect, also on September 1. However, an Atari spokesman said there should not be any similar problems with the 1040 announcement.

"All price changes downwards tend to help dealers. Most of the trade were anticipating the 520STFM price drop and stocked accordingly," he said.

Hewson latest

HEWSON and Mastertronic have announced further details of the Hewson Rack-It budget range, which will be distributed by Mastertronic (see *Popular Computing Weekly,* August 7).

In addition to the eight titles announced last week, the release schedule has now been finalised up to the New Year. Other formats will be available for *Mr Wino* and *International Bowls,* while the period leading up to Christmas and shortly afterwards sees the release of *Sunburst* (C64), *Into Africa* (Spectrum), *I-Xera* (C64), *Herobotix* (C64), *Super Cup* (C64), *Rex Harde* (Spectrum) and *Powerama* (C64).

Conversions will also be released for other machines, including C16, Atari and MSX.

Hewson's Debbie Sillitoe had already made it clear that the company would be using the potential success of Rack-It to devote resources to 16-bit development, and last week confirmed: "We will certainly have a range of new (16-bit) products by next autumn."

For Mastertronic, Rachel Davies would not rule out the possibility of handling products for other houses in the future, but nevertheless preferred to concentrate attention on the Hewson deal:

"We've got three new labels plus the old established label plus this new label. There's enough for the consumer to cope with before we start talking about tying up X, Y and Z," she said.

Debbie Sillitoe

Electronic Arts name 26 titles available soon

ELECTRONIC Arts has announced a total of 26 titles which it will be releasing during August and September, in advance of the official launch of UK subsidiary Electronic Arts Limited, on September 8.

All the new titles have been previously unavailable in the UK on the formats listed below, although they are available in the US. A number of titles will also be re-released which were previously distributed in the UK by Ariolasoft.

"We are looking to support UK software artists designing high quality software," said Mark Lewis, EOA's director of European publishing.

"We are in discussions with a number of software developers and are happy to talk to those who believe they can offer creativity and quality programming," he added.

Full details of the UK subsidiary's plans are expected at next month's official launch.

The 26 titles are as follows: *Archon, Arctic Fox* (Amstrad, £8.95 tape, £14.95 disc), *Bard's Tale* (PC, £24.95), *Chessmaster 2000* (C64, £14.95 *disc*, Amiga, Atari ST, PC, £24.95), *Music Construction Set* (Atari ST, £24.95), *Deluxe Paint II* (Amiga, £69.95), *Marble Madness* (PC, £19.95), *Earl Weaver Baseball* (Amiga, £24.95), *Pegasus* (C64, £9.95 tape, £14.95 disc), *Earth Orbit Station* (C64, £14.95 disc), *Legacy of the Ancients* (C64, £14.95 disc), *World Tour Golf* (PC, £19.95), *Chuck Yeager's Advanced Flight Simulator* (PC, £24.95), *Starflight* (PC, £24.95), *Degas Elite* (Atari ST, £24.95), *Lords of Conquest* (C64, £12.95), *Adventure Construction Set* (PC, £14.95), *Grand Slam Bridge* (PC, £24.95).

Police investigate BB

THE Obscene Publications Squad was last week investigating a Surrey-based bulletin board, after it emerged that pornographic material was being transmitted through it, and could be accessed accidentally.

The private mailboxes were inadvertently accessed by a *Sunday Times* reporter, who alerted the Squad. Police are understood to be concerned that paedophiles may use this and other networks to contact each other.

The board is run by computer systems manager Mike Parker. He was reported to be horrified by the idea that innocent people might be exposed to explicitly pornographic material.

Parker claims to have closed the system down, and was last week voluntarily helping the police track down any illegal users of the mailbox network.

Popular Computing Weekly attempted to question Parker about the affair, but he could not be contacted at home last week.

Martech buys Slaine licence

MARTECH has bought the licence for 2000AD cartoon character Slaine. The company has chosen the title of *Slaine the King* for a game based on the character which Martech hopes to release next month.

Slaine the King is being designed by Creative Reality, a group of programmers which has developed Reflex, a game control method which is designed to make arcade gameplay more similar to an adventure format.

Slaine the King will be available on Spectrum, Amstrad and Commodore formats in late September, and prices will be as follows. Spectrum cassette £7.95, Commodore and Amstrad cassette £8.95 and Commodore disc £12.95.

SOFTWARE HOTLINES

No sooner has a copy of **Gremlin's** *Mask* game plopped onto my desk, than the company goes and announces its plans for the sequel. *Mask II* will be a four part game in which you once more lead the Mask team into battle to save the world, etc.

Gremlin is getting into the licensing game with a vengeance at the moment. As well as the planned *Mask* and *Death Wish* games they've got titles planned to tie-in with footballer Gary Lineker, and the films *Basil The Great Mouse Detective,* and *Master of the Universe* (this is the game of the film of the toy, not to be confused with US Gold's *Masters of The Universe,* which was just the game of the toy).

It's also taking its first steps into the 16-bit market with a new space combat game for the ST. It sounds like it should be filed under *Elite/Starglider,* with filled vector graphics, but will have the advantage of the ST's sound and graphics capabilities.

However, you won't be able to buy it until Gremlin decides what the name of the game is going to be.

The name of **Tony Crowther's** next game is *The Centurions.* The centurions are an elite fighting force, armed with special mechanical exoskeletons which make them extremely hunky.

Their mission, in the game, is to penetrate a security complex and foil the plans of the evil Doc Terror before he can unleash the dreaded Tyron Dichromate upon the world (TD is a poisonous chemical, not a '50s film star). *Centurions* is due out on the Spectrum, C64 and Amstrad CPCs any minute now.

I don't remember seeing any Spectrum games from **Bubble Bus** for a while, but it is about to release a new one called *The Fifth Quadrant* quite soon.

It's an arcade adventure set on board an intergalactic spacecraft. The ship has been overrun by an alien race and it's up to you to control four robot crew members and regain control of the ship's systems.

The game has over 200 locations, and as well as zapping all the aliens you also have to crack their language before you can reprogram the ship's computers.

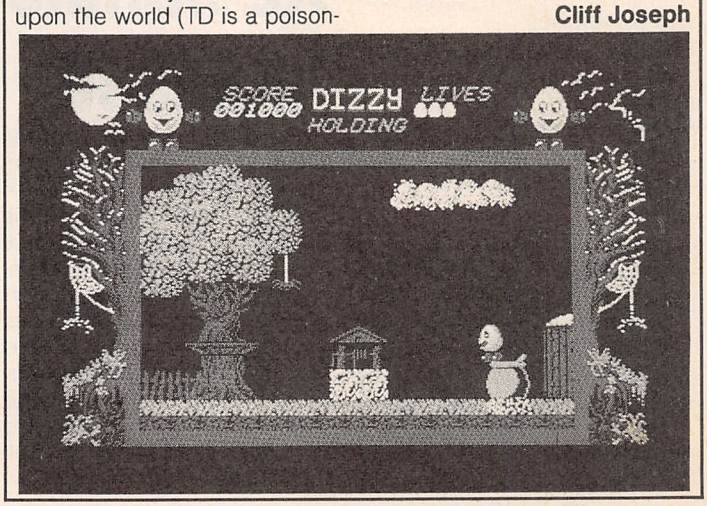
Another arcade adventure that's due soon is *Dizzy* by **Code Masters.** This isn't your average arcade adventure though. It's designed in a humorous cartoon style, with lots of bad egg/bird jokes.

One of your main enemies in the game is a flock of vampire ducks (well, it makes a change from invading aliens), and the aim of the game is to rescue the yolkfolk of Katmandu from the evil wizard Zaks.

Dizzy is written by the Oliver Brothers, who were behind the earlier *Grand Prix Simulator* and, attempting to follow up that success, Code Masters has got *ATV Simulator* as well as the Amstrad version of that excellent Imagine shoot 'em up, *Transmuter.*

Finally, there's a bit of good news for Amiga owners: Mastertronic/Melbourne House has announced a range of titles for the machine to go on sale this autumn. Mastertronic's budget discs (mainly conversions of existing titles) will cost £14.95 whilst the full-price games will be £19.95.

Cliff Joseph



DIARY DATES

AUGUST

22 August
ZX Microfair
New Horticultural Hall, London SW1
Details: Latest innovations for Sinclair users
Price: £2.00/£1.50 on door, £1.50/£1.00 advance
Organiser: Mike Johnston 01-801 9172

SEPTEMBER

23–27 September
Personal Computer World Show
Olympia, London
Details: Latest hardware, software and peripherals for business and leisure computing
Price: £3, £2 – (parties over 10)
Organiser: Montbuild 01-486 1951

OCTOBER

15–17 October
Desktop Publishing Show
Business Design Centre, London
Details: Demonstrations of latest hardware and peripherals, plus seminars and user clinics
Organiser: Database Exhibitions, 061-456 8383

NOVEMBER

14 November
National Einstein Exhibition
National Motorcycle Museum, Birmingham
Details: Einstein software etc.
Price: 50p
Organiser: UKEUG (0473) 49507

Prices, dates and venues of shows can vary, and you are therefore strongly advised to check with the show organiser before attending. We cannot accept responsibility for any alterations to show arrangements.

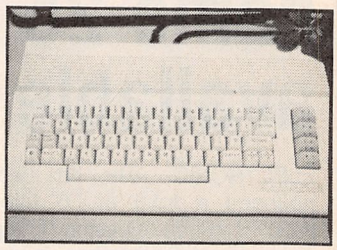
Boots undecided on C64

AMID announcements of autumn bundling deals last week, it emerged that Boots may be considering dropping the C64.

A Boots spokeswoman confirmed that the company is currently putting the machine through tests. She said: "Testing is under way at our laboratory, and we haven't yet decided whether to continue with the Commodore 64 or not."

No further details were forthcoming, but it could point to Boots dropping the machine in the New Year, after the Christmas period the Boots bundling deal is aimed at is over. The spokeswoman made it clear that no decision would be made until all tests were completed.

Meanwhile the Boots C64 package goes on sale on October 30, and features a 64c, datacorder, six games and Cheetah 125 Plus joystick for £199.99, compared to the Commodore bundle of 64c, datacorder, mouse and software at £249.99. There will also be 10 software vouchers worth £2.



C64 – future in doubt

Mirrorsoft looking for testers

MIRRORSOFT is looking for play testers to evaluate programs scheduled for release towards Christmas.

Volunteers – there will be no financial rewards – will extensively test out the new products for bugs, and their comments will be noted, and, if feasible, acted on by the company.

A spokesperson for Mirrorsoft said, "Testing plays an important part in game development, but our present group are already overworked with the amount of games we've got, so we're looking for new blood."

Would-be testers should apply in writing to Mirrorsoft Playtesters, Athene House, 66–73 Shoe Lane, London EC4P 4AB.

British micro awards finalists

THE finalists were announced last week for the annual British Microcomputing Awards, which will be presented in conjunction with the *PCW* show in London on September 23.

The awards cover all aspects of the Industry, and are divided into the following five categories: Business computer of the year, business software, home/small business microcomputer, home/small business software, and game of the year. There are also three special awards. The finalists were chosen from 100 initial nominations.

An interesting result is predicted in the home/small business microcomputer category, which will be decided between Amstrad's PC1512, the Commodore Amiga 500 and the RISC-based Acorn Archimedes 300.

The judges will have to decide between the pricing strategy behind the Amstrad, the graphics capabilities of the Amiga, or the speed and technological advancement of the Acorn.

Home and small business software will be judged between Migent UK's *Ability* integrated business package, Database's *Desktop Publisher* and Compsoft's *Bookworker.*

Game of the Year could be Rainbird's *Guild of Thieves,* Electronic Arts' *Marble Madness,* or Mirrorsoft's *Defender of the Crown.*

Final judging will take place later this month, and the results announced at a special presentation dinner at London's Gloucester Hotel on September 23.

XE bundle finalised

FURTHER to our review of the three impending games consoles this week (see pages 14 and 15), Atari has finalised the software programs to be bundled with its XE Games System.

The XE Games System (formerly known as the 65XE) has *Missile Command* built-in, and two other programs, *Flight Simulator* and *Bug Hunt,* are to be supplied on cartridge with the special XE pack, which will sell for £119.99.

PI-MAN SET TO RETURN

AUTOMATA, former home of the Piman cartoon character, has been bought up by Interceptor Micros, which will be releasing four new Automata titles later this month.

The label is to be re-launched as a mid-price adventure range, and the distinctive Piman character is "more or less being abandoned, except for the small logo on the cassette inlay", according to Interceptor Micros' Albert Night.

Automata attracted a cult following three years ago with titles such as *Pimania* and *Olympimania,* culminating with the ambitious *Deus Ex Machina.*

The forthcoming titles will cost £3.99, and are due to be released on August 23. *Mythyhel* on the Amstrad, *Asiento* and *Sword of Kings* on the Spectrum, and probably the existing Interceptor adventure, *Warlord,* on the C64.

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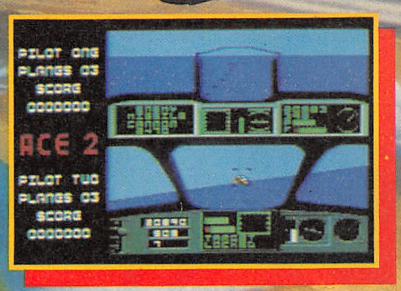

- *Air-air and air-ground combat.*
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(IBM and Atari for Christmas)

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Screen shots are taken from the C64 version.

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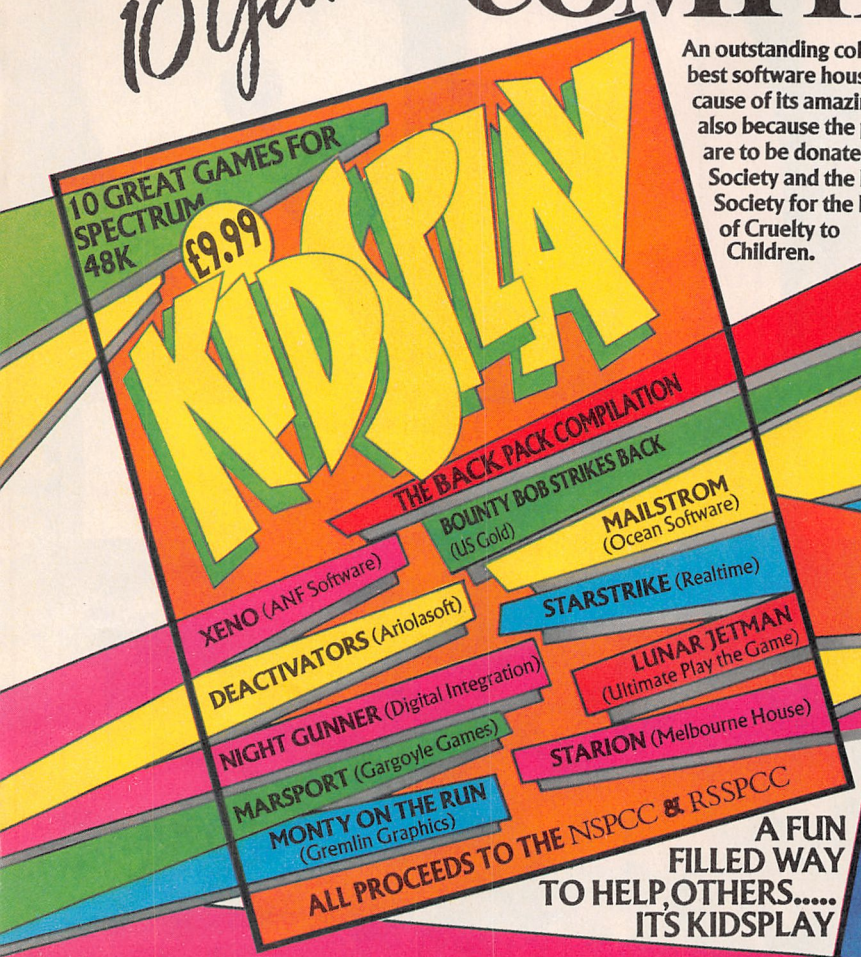

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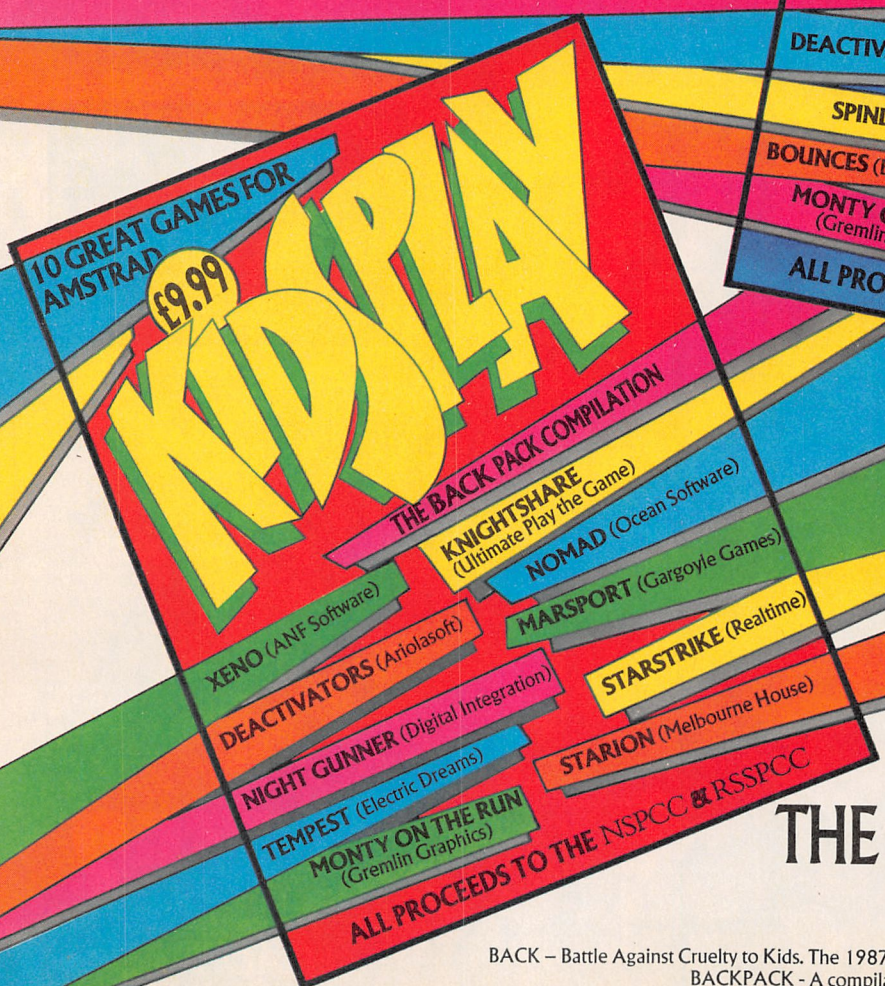

YOU HAVE THE FUN...!
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BACKPACK - A compilation of 10 first class software games donated free by software companies.

KIDSPLAY thanks this magazine and the following companies for the generous donation of their services: CAMEL ADVERTISING, G & L SERVICES, ROWLEY STUDIOS, FRIARSGATE STUDIOS, PRE-PRESS SERVICES, CRYSTAL DESIGN, AMPERSAND, STEEL SPLASH, PRINTING CENTRE, LYNE PRINTERS, WILLBOND ARTISTS, PAUL CANNY, D. J. ROWE and INTER MEDIATES.

Cheetah Marketing sold to Cannon St

PERIPHERALS marketing firm Cheetah announced last week that Cannon Street Investments has acquired its parent company, Hi-Tech Holdings, for a maximum figure over three years of £2.7 million.

Hi-Tech co-director Howard Jacobson was anxious to point out that his company was in good financial shape, and that the move was in no way a rescue bid.

"We just made record profits, so it's really an acquisition which will help us increase our business and enter markets like the music business," he said.

Jacobson added that Cannon Street's involvement will be almost entirely financial, with management support available when required. CSI's Dennis Baylin and Ian Pratt will be joining the Hi-Tech board.

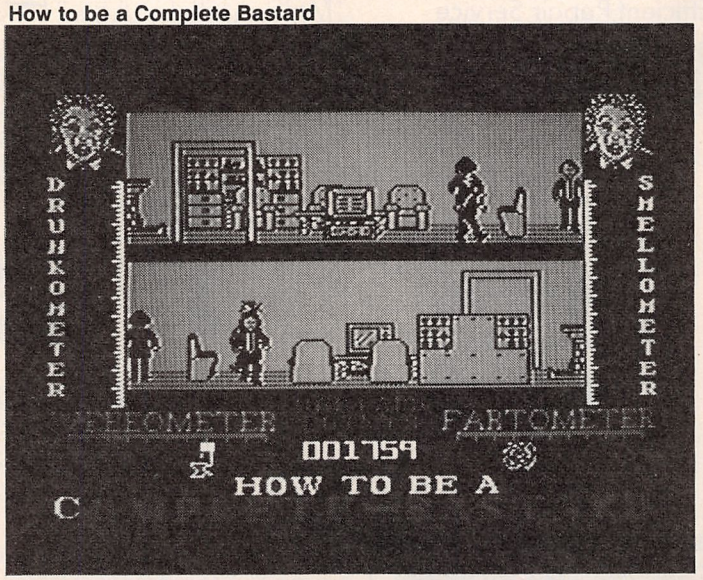
Virgin announces 'Bastard' game

VIRGIN maintains its attack on the sophisticated end of the market with the licence to *How to be a Complete Bastard*, based on the best-selling book by Adrian Edmondson.

The plot features Ade, "the bastard", gatecrashing a party. The idea is for Ade to wind other guests up, score "bastard points", and so on.

HTBACB will appear in late September; on C64/128 at £8.95, Spectrum 48/128 at £7.95 and Amstrad CPC at £8.95 on cassette.

How to be a Complete Bastard



BMF criticised over business bias

DAVID Fraser, British Microcomputer Federation chairman and Microsoft's UK MD, last week dismissed the games software industry as being "too volatile" to contribute to establishing credibility for the industry through the BMF.

His comments have provoked a strong reaction from several leading figures in the games software industry.

Asked to respond to criticism that the fledgling industry body failed adequately to represent the entertainment sector, he said: "If the BMF is to become stable, it will not be through being a fixing house for people's problems.

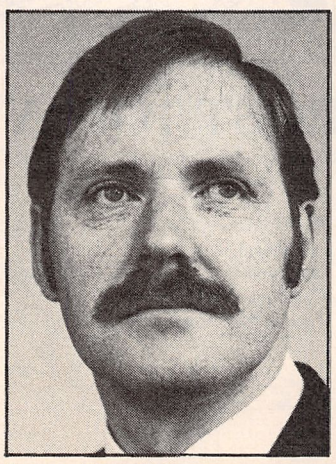
"All companies want credibitily to be achieved through people who can put in hard work, and the entertainment end of the market has too few people with a long enough perspective.

"It is too volatile, and within the BMF is often taking out, while not always contributing. I am very conscious of the need to represent the whole industry," Fraser added.

But his strident remarks found no favour with those in the games sector who dismissed Fraser's negative attitude as one which the BMF should be trying to combat.

"I'd dispute the fact that we're a scummy bunch of people who can't see beyond tomorrow," said Paula Byrne, general manager of Telecomsoft, which is not a member of the federation.

"I'm looking ahead five years.



Fraser: "volatile"

I have to if Telecomsoft is going to stay successful. In any event, there's all these committees which never achieve anything unless you've got someone working at it full time," she added.

Mastertronic boss Geoff Heath represents the entertainment software sector on the BMF committee. He was puzzled by Fraser's comments.

"He must have amnesia," Heath said. "I've sat on the committee for the past few months, giving what I thought was a reasonable, serious contribution. One thing we are very serious about is this business; I can't quite figure out what he's trying to say."

Correction

In last week's New Releases, we referred to *Guild of Thieves* as a Firebird title. It is, of course, originated by Magnetic Scrolls and published by Rainbird.

NEXT WEEK

RISC and the Archimedes

The launch of Acorn's RISC machine, the Archimedes, has provoked much discussion about the potential of RISC in computer technology.

Next week, we look at RISC and its implications, with a full review of the Archimedes 300: a machine to bring Acorn back to the forefront of the micro market?

Learning Lisp

Kenn Garroch continues his guide to the language Lisp, its features and uses. Next week, Kenn will take a further look at recursion and other important elements of the language.

Video titling

You can add captions to your video pictures with a Commodore 64 and this package available in the UK through US Gold, Chris Jenkins reports on its versatility and ease of use.

Spectrum Magic Button

Mick West presents a 'magic button' kit for use with the Spectrum. Parts for the kit, which will cost you under £7, can be bought from most dealers, apart from the specially encoded Eproms, available only from Mick himself.

Once you've built your Magic Button, you'll be able to examine and alter memory, disassemble programs, back up to Microdrive and save screen pictures.

Please note that this is not a piracy tool. The Eproms, which are essential to the kit, are configured to prevent this type of abuse.

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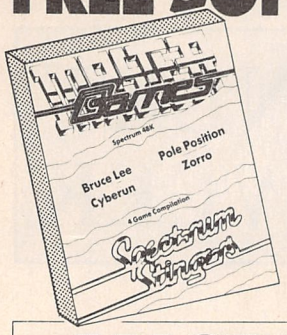

As illustrated value £9.99 (or similar subject to availability) will be sent with all completed repairs during August. Maximum repair prices:

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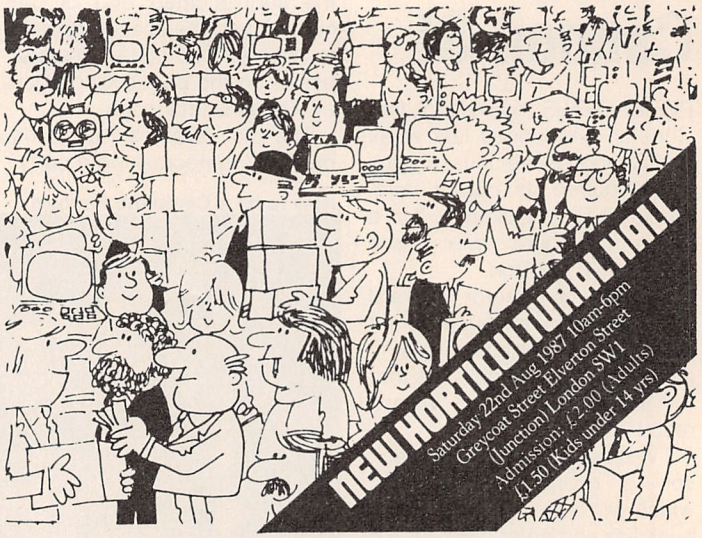
SUMMER MADNESS AT THE MICROFAIR



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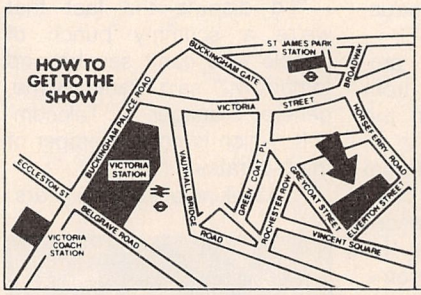

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Grandmaster loses to chess machine

Martin Bryant brings you Grand Master John van der Wiel's commentary of his match against the Elite Avant Garde chess machine.

In Rotterdam last year, International Grand Master John van der Wiel played a simultaneous display against 40 opponents. One of them was the Elite Avant Garde Chess Machine. Now, it is not every day that an IGM loses to a chess computer but this was the day, and generous in defeat John provided his own commentary after the game which I present here in his words.

White: John van der Wiel
Black: Elite Avant Garde
1 c4 c5 **2** Nf3 Nf6 **3** g3 b6 **4** Bg2 Bb7 **5** Nc3 Nc6

The move is not optimal, though not very harmful yet. The Knight diminishes the effectiveness of the Bishop on b7. Black would do well to develop the King's Bishop by playing e6 or g6 and then to castle.
6.0–0 Nd4?

Loss of tempo

Black cannot really afford this loss of tempo. It is not the first time I notice that computer problems arise in English openings rather than in others. Why should this be? Is the type of play less manifest or have its variations been neglected in programming? After **7** Nxd4 Bxg2 **8** Kxg2 cxd4 **9** Nb5 e5, Black would have little to fear, but White's next move neatly refutes Black's intentions.
7 e3 Nxf3+ **8** Bxf3 Bxf3 **9** Qxf3 e5?!

Not very positional, but Black must now watch its steps closely. The normal looking move **9** .....e6 may be followed by **10** Nb5 (threatening Qxa8) d5 **11** Qf4!, landing Black in a problem area. The best move would have been **9** .....a6 **10** d4.
10 d3?

White fails to cash in. Two fine options exist. A) **10** d4! Black is clearly seen to be behind in development. The worst may be prevented by **10** ...exd4 **11** exd4 Be7, but after **12** dxc5 bxc5, Black's d-pawn is retarded; he is also saddled with weak squares on the d-file. B) **10** Nb5! with the almost inevitable sequence **10** ...e4 **11** Qf4 d6 **12** Nc3 (or even better: b3) Qe7 **13** f3 exf3 **14** Qxf3 greatly to White's advantage.
10 ...Be7 **11** e4 0-0

11 ...h6 seems more logical, because it impedes **12** Bg5, though, in the Knight versus Bishop position, White, in order to progress at all, will have to allow some liberty to the Black Bishop.

I expected **12** ...Ne8 **13** Bxe7 Qxe7, but after **14** Nd5 White also has a pleasant advantage
13 Bxf6 Bxf6 **14** Nd5 Bg5 **15** Qg4 h6

White now has a thematic position with an overpowering Knight on d5. Ultimately, f2-f4, the key moves could have been more carefully prepared by way of **16** Rae1! and **17** Re2, after which White's advantage could not have been gainsaid. I should have dwelt longer on this issue, but as matters stand, one is less careful in a simultaneous display.
16 f4 exf4 **17** gxf4 Bf6

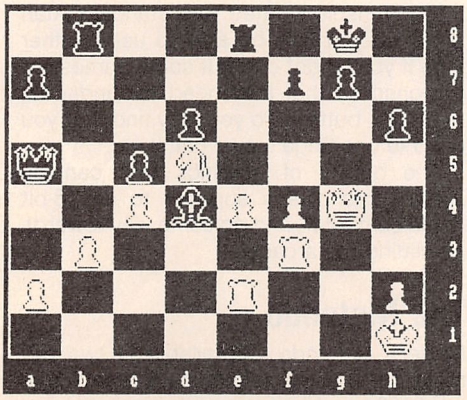
The Bishop is a major nuisance, stopping White from entrenching his rooks on the squares of choice.
18 Rabl Bd4+ **19** Khl Rb8 **20** Rf3

20 b3, followed by **21** Rbe1 and possibly Re2 would have been better at this juncture
20 ...b5 **21** b3

White should have been consistent here, which leads into **21** Rg3 as a continuation (threatening **22** e5). His reaction **21** ...f5 **22** Qg6! is mediocre.

21 ...bxc4 **22** e5 g6 **23** Nf6+ is most jeopardising too. There is a more conservative and solid move: **21** ...Kh8 followed, if required, by Rg8.

Black now has ample scope for counterplay to be implemented with originality.
23 Rel Qa5!? **24** Re2



Van der Wiel vs Elite: position at move 24

24 ...Qa3

A most remarkable positioning of the Black Queen, a long way from home, but related to a tactical threat I overlooked. Had I seen it, I would have responded with **25** Kg2 (more accurate than **25** Rf1, Black responding with **25** ...Rb7 followed by a7-a5-a4; neither at once **25** ...a5, because of **26** Nc7! **27** Nb5); the continuation **25** ...Qcl **26** Rfl is not too useful, but after **25** ...Rb7 **26** e5! threatening **27** Nf6+ is overwhelming. In summary, the Black Queen's sortle was unjustified, yet it trapped me nicely!
25 h4? Qcl+ **26** Kh2 Rxe4!

Oops, I overlooked that one. White loses an important pawn. White hopes to acquire an endgame which might be difficult for Black to win.
29 ...Qel!

Good thinking. White might create havoc with his f-pawn, but is greatly hemmed in by the Black Queen.

Decisive error

30 f6 Qhl **31** Kg3 Be5+ **32** Kf2 g6 **33** Qh3?

The decisive error. White would still have had chances to let the outcome be doubtful by aggressive play. **33** Ne7+ and Nc6 or **33** h5!?, the latter appearing to be the better bet.
33 ...Qb1!

What a position for the Black Queen! White should have moved **34**h5 or **34** Ne7+, but seeks his salvation in a pawn sacrifice which he had computed all too shallowly.
34 a4? Bd4+! **35** Kg3 Rxb3 **36** Rxb3 Qxb3+ **37** Kh2 Be5+ **38** Kg2 Qxc4

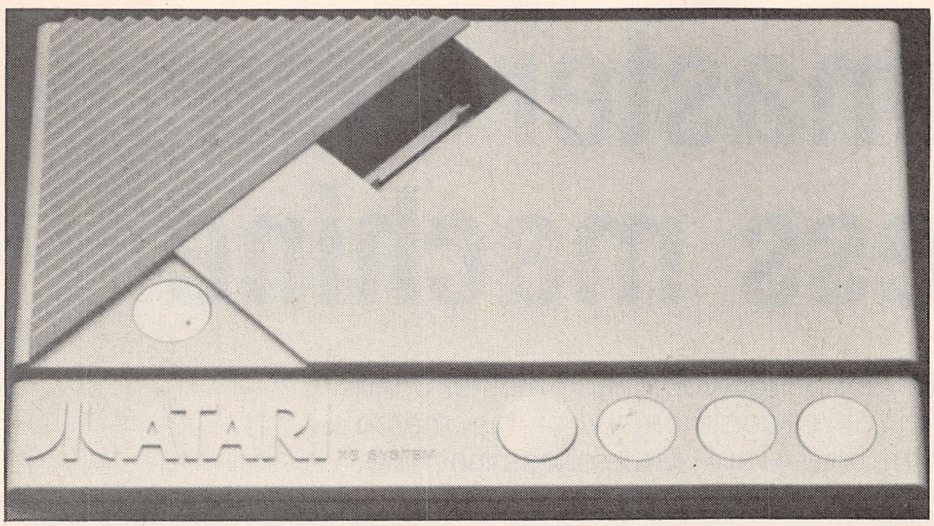
Discouraging to say the least. Black would be hard put to it to win the endgame but is well able to nullify any mate threat.
39 Qc8+

What else to try in desperation?
39 ...Kh7 **40** Ne7 Qe2+

Lights start flashing now on the board, in preparation as it were for a black celebration! Being a fancier of parties, I decided to make this one last, even if the end was only three moves away.
41 Kgl Bd4+ **42** Khl Qfi+ **43** Kh2 Be5 mate

Avant Garde meticulously proceeded to the coupe de grace.

Martin Bryant is the author of Colossus Chess



Atari's XE Games System

CONSOLES FIGHT BACK

Dedicated games consoles are back in force. Duncan Evans and Cliff Joseph assess how the machines have progressed since the days of Ping-Pong.

Anyone who has followed the home computing industry during its short history will probably remember the early video games consoles – units such as the Atari VCS system, Colecovision and Intellivision. They started off simply enough, with games like *Ping-Pong* and *Tennis* and with the support of third party companies like Activision eventually achieved a fair level of sophistication, before dying out when cheap home computers took over.

Now, however, the games console has got a second chance. The new generation is unashamedly dedicated to flashy graphics and bringing coin-op quality games into the home. Of those early manufacturers, only Atari is still going strong although in a virtually unrecognisable form, whilst the two new competitors are Nintendo and Sega, which have long and successful records in the coin-op business.

The Sega system

Like the Nintendo console, Sega's Master System (marketed in this country by Mastertronic) has the parent company's backlog of successful coin-op titles ready for conversion. This includes games such as *Space Harrier* and *Enduro Racer,* as well as third-party titles like *Ghost Busters* (Activision) and *Choplifter* (Broderbund).

The system itself consists of the console, two small joysticks, 9V adaptor and the various cables (a nice idea is the inclusion of a 'switcher' device that allows you to keep both the Sega and your TV aerial plugged into the TV so that you can switch between the two as required).

The console is fairly neat, about a foot wide by eight inches deep. Two joystick ports are mounted on the front, along with the Ram card socket and the cartridge socket; pause and restart buttons are on top. The instructions are commendably clear and simple, and setting the system up took all of 30 seconds.

At just under £100, the Master System is priced comparably to the other two. The optional extras bump up the price, however. There is a light phaser (a light sensitive 'gun' that operates by being aimed at the screen) and also a set of 3D glasses. These cost £44.95 and £49.95 respectively, and both come with a game cartridge so that you don't have to buy additional software. The vast majority of games will work perfectly without them.

The only thing that you may find necessary is the advanced control stick. The two small pads that are included are a bit fiddly for the sort of firm, fast control arcade games need. They are also very much for right-handed people.

The console is fitted with standard Atari ports, so you may be able to use another type if you've got one but some games are designed so that they need two independent 'fire' buttons so you may find that you need to use Sega's own units.

The quality of graphics that can be achieved is clearly superior to any 8-bit home computer, and go some way towards emulating the arcades.

The Nintendo

Mattel's Nintendo is available in two formats. The first will set you back approximately £100 for which you get the control deck, two hand controllers and a *Mario Brothers* 'Game Pak'.

The Delux Nintendo is an extra £60 and includes the Zapper gun, ROB (the robot) and two games, *Gyromite* and *Duck Hunt* (no *Mario Brothers*). The Zapper gun and ROB are available as optional extras, and cost £19.99 and £44.99 respectively.

The basic system is a squat box constructed of sturdy plastic in two-tone grey and black. It measures a small ten by eight by three and a half inches and has sockets for the power supply, two game controllers, an RF output to a TV, and also video and audio (which aren't normally used). A big minus point is that the game controller sockets are not the Atari standard so you cannot use any joysticks and paddles you may already have.

Around the front of the Nintendo resides the power and reset buttons, along with the socket for the game cartridges.

Setting the basic system up is easy and painless. In a matter of minutes you'll be ready to go (assuming you have a spare plug of course). More confusing is setting up Robby the Robot with its plethora of plastic paraphernalia. The instructions are not in the main manuals, but within the actual Game Paks.

The graphics in the games are only average, although they are quite colourful. The actual screen resolution is 256 by 240 pixels and there are 52 colours available, although you can only have four colours to each sprite. Eight sprites per horizontal line is the most that can be displayed.

In the audio department there is a rough sounding speech synthesiser and three channels of music.

The Nintendo has a 32K Rom, with the cartridges weighing in with two extra Rom chips. All of this combines to produce a system which is inferior to the Sega but significantly better than the Atari machine.

However, if the system itself is at least adequate, and the Nintendo assuredly is, then it is the quality of the cartridges that will sell, or not sell, the machine.

Of the 17 available now, with another 10 due out this year, it is really only the sports games which rise above the mediocre level set by the others. The games tend to fall into three main categories: sport, simple shooting games, and platform and ladders (which, if you like, you'll probably be very happy with). The prices range from £19.95 to a hefty £31.50 (the ROB series), athough most are in the low twenties.

Of the accessories Robby the Robot is superficially the most impressive, and in-

deed ROB games successfully incorporate the thing into the game play. ROB cannot move around on its own though, and is limited to arm movements in four directions and opening and closing its claws.

The hand controllers are not that good; there are plenty of buttons which are used intelligently by the software, but the actual control is not sufficient for high speed manoeuvring.

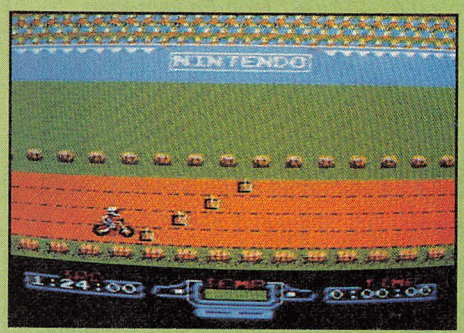
The Zapper light gun, though, is something else. At around half the price of the Sega gun, it is durable and most importantly very accurate. If you do buy a Nintendo you simply must get the excellent Zapper and a couple of the simple shooting games.

If you're looking for stunning arcade conversions then the Nintendo is, at the moment, not the console for you, but for families with younger children, the simplistic style of many of the games, and possibly the cheapes robot around, could combine to provide ideal Christmas fare.

Right: the Nintendo system, complete with ROB the robot. Below left: *Excitebike* and (right) *Wild Gunman*, cartridge software for the Nintendo. Bottom: The Sega Master System and light phaser gun

The Atari XE Games System

Of the three consoles reviewed in this games machine feature the Atari XE Games System (formerly called the 65SXE) is by far the oldest, being derived from the old Atari 400 and 800 series of computers. These were first released in 1978, and that is starting to show, especially in the graphics department.



You can buy the XE System either on its own for £79.99 or, for the tidy sum of £119.99, in a special pack which includes two joysticks, a couple of cartridges (titles not yet decided) and a light gun which bears an almost uncanny resemblance to the Nintendo weapon.

The console itself, then, is housed in a smart beige case that measures approximately fifteen by eight by two inches. It sports a power and four options buttons, two standard Atari joystick ports, power socket and a cartridge port set into the top.

As mentioned above, the XE is based on an existing product, the major change being that it has no keyboard. Inside the machine there are still all the major chips, such as the Rom containing Atari Basic, which you can't use until you attach a keyboard.

One of the more awkward features of the original computer has thus been retained, namely the start up options menu, which is what the buttons are now for.

The technical specifications of the system run like this. The CPU is 6502, there is a 24K Rom, and 64K Ram when you add the keyboard, very good sound capabilities with four channels, and a number of graphics modes. Officially the best modes are 320 by 192 pixels in four colours, 160 by 96 pixels in four colours and 80 by 192 pixels in 16 colours (selectable from 256).

So, for software with a lot of colour the graphics are crude. However, and it is a very big however, for virtually all new software, programmers have tweaked the display to get 16 colours (done by interrupts) out of it while retaining a 160 by 192 resolution. This is respectable but doesn't compare well with the other two systems.

Moving on to the software side, this is where the XE currently has the advantage because although the other systems may have the more impressive hardware, there is a very large software catalogue (the majority of it on tape and disc, mind you) available. With games like *Impossible Mission, Summer* and *Winter Games, Super Huey,* and *Touchdown Football* recently being produced in a cartridge format, and the prices averaging at £9.95 (some of the top quality stuff retails for £14.95), then for sheer variety the XE wins hands down at the moment.

As far as the accessories are concerned, the light gun is not that well supported. Adding the keyboard, though, which comes with a cassette deck for £59.95, will turn the console back into the 64K computer it, at one stage, was. The world of non-games applications would then open up, though this would probably not be the main reason for buying this machine.

Once you have a disc drive or the tape deck, though, the catalogue of available software increases by more than tenfold. The other advantage is that you then have real access to the computer and can write your own programs.

Of course, if you had your aim set on turning the XE back into a computer then you should perhaps consider buying a 130XE or an 800XL (which should be heavily discounted if you can find one) because it undoubtably works out cheaper.

Conclusion

So, the question remains, which is the best console system? The answer I'm afraid is not clear cut.

For the games player who wants the widest range of software at the cheapest price to boot, and aspires to programming at some point, then the Atari XE Games System, the cheapest by £20, is the one to go for. As a purchase for families with younger children, the Nintendo, with its top notch light gun and the Robotic Electronic Buddy, and generally simpler software, would prove a worthy purchase.

But for those out and out gaming addicts who want the best hardware and top quality arcade conversions, and don't mind paying handsomely, the Sega system reigns supreme.

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IMPORTANT ANNOUNCEMENT

We are delighted to announce that we have been appointed sole UK distributor of all **GEOS** products, by the importers First Analytical Ltd.

We are sure you are already familiar with the features of the GEOS systems (if not check the reviews in CCI). So good it even rated a multiple page review in Personal Computer World, not many 64 programs can boast that. But to encourage those of you who have not yet brought your 64 into a new lease of life look at these Introductory prices to tempt you...

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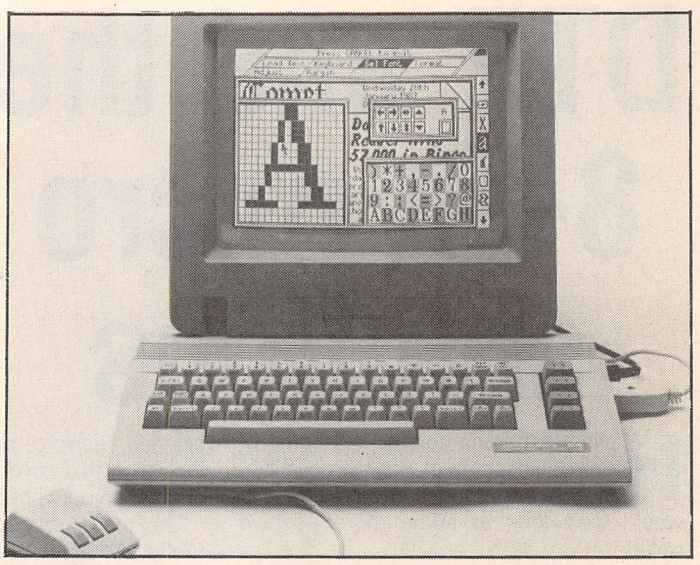
More Wimps on the C64

Chris Jenkins tries out the long-awaited AMX mouse for the Commodore 64.



Many software companies have tried to press eight-bit micros into the desktop publishing field (see special feature in this, and last, week's issue) where really only the more sophisticated machines should be happy to tread.

The main problems with trying to implement dtp on the less sophisticated machines are that the memory, screen resolution and printer output are rarely up to scratch; megabyte memories, high screen resolutions and laser printers are the in thing if you want to make a convincing attempt to by-pass the processes of typesetting, layout and page makeup to produce your own publications.

Having said that, AMS's systems are an excellent attempt to do the business for eight-bit machines, and at last the long-awaited (and extensively advertised) Commodore 64 system has arrived.

The initial package is very comprehensive, containing an excellent three-button mouse and disc-based window/icon/mouse/pointer (WIMP) software for icon design, graphics and page layout. Before I get carried away let me emphasise that the limitations of the 64 and its supported printers mean that even the best 64 desktop publishing package – which this may well be – could not produce "professional" results.

However, it's ideal for producing newsletters, posters, labels, greetings cards, letter heads and so forth – anything where a simple word processor isn't enough.

The screen displays of the software are excellent, with large, clear icons and neat text fonts. The mouse too is well-designed, fitting easily in the hand and featuring a non-slip rubber ball, positive-action buttons and a gratifyingly long cable which plugs into the 64's joystick port.

Stop Press, the desktop publishing package, features a row of icons on the right of the screen, and a selection of options plus a message window across the top. Clicking over an option tag pulls down a further list; the system works in the same way as the Macintosh or Atari ST, though visually *Stop Press* looks nothing like a Gem program.

What facilities are available for page design, then? The icons on the right allow you to select various composition and page handling options. The disc drive icon takes you into the storage dialogue, where pages, windows, fonts, and patterns can be saved or loaded to or from device numbers 8, 9, 10 or 11.

The scissors access the image editor, where you can copy, flip, rotate, stretch or zoom windows. In zoom mode you can pixel edit in a 16 × 16 grid.

The Text function allows you to load text from program or sequential Ascii files, then edit it in various ways; by centring, left or right justification, wordwrap, literal unformatted, and with various margin options.

You can even select Autoflow, by which the graphics act as margins for the text; so you can set text around an elliptical picture, or have it clinging along the edge of a diagonal. Creative stuff.

The Font option allows you to load, edit, or even create entirely new fonts, from 16 × 16 to 64 × 64 pixels, using the familiar grid method. There's also a pattern designer routine along the same lines.

The Graphics editor includes options to draw using lines, pens, boxes, ellipses, sprays, or a variety or predefined patterns which can be used as "potato-prints", fills or brushes. Note that the graphics facilities have no colour options; since the idea is to produce a printed output, they would be redundant.

A "quick-click" reference box can be pulled up if you want to check the setting for, say, the size of the spray nozzle or the type of shape used, solid, pattern or outline. You can also select Ghosting, which is a form of Invert option.

Printer support is comprehensive, with driver files for parallel, serial and RS-232 devices provided. A total of 32 excellent fonts in a variety of sizes are provided on the data disc, along with a large selection of "clip art".

The Control routine is a Basic extension adding 30 commands for writing Wimp programs. Windows in any colour can be overlapped, icons and text placed on any pixel, screen areas stored and retrieved, and graphics routines such as line drawing implemented in machine language. The last section of the comprehensive spiral-bound manual is devoted to an explanation of the Wimp command syntax, and suggestions for more advanced machine code programmers.

Graphics from the popular *Printshop* and *Newsroom* packages can be converted to *Stop Press* format using the Cutout Convertor routine, which will also convert an area of the display from your pages into handy bite-sized graphics files.

After some time working with *Stop Press* I feel I have only scratched the surface, and can understand why it took so long to produce. This is a remarkably intelligent and professional package which, within the limitations of the 64's printer output, will enable you to produce polished publications quickly and easily.

Program *AMX Mouse and Stop Press software* **Micro** Commodore 64 **Price** £69.99 **Supplier** AMS, 166–170 Wilderspool Causeway, Warrington WA4 6QA. Tel: 0925 413501.

DTP and the 8-bit micro solutions

Having last week pointed out some of the deficiencies of desktop publishing packages on home micros, this week, we'll look at some more positive points.

At a simple level, the DTP programs we've mentioned in the feature will provide you with the means to take word processing activities a bit further. For example, you may wish to use different type styles (fonts) for your documents, or to mix two different styles, or use, say shaded or patterned backgrounds to improve the look, or emphasise part of your work. While many of the more sophisticated word processing packages these days offer a range of fonts, they don't cater for effects such as shading.

One aspect of word processing which certainly the 8-bit word processors haven't yet conquered is importing graphics, so that they can be integrated into your text, either as illustration or explanatory diagrams. Here, you could well consider a desktop publishing program, not so much for the well-publicised 'newsletter' use, but for word processing versatility.

The sophistication of various DTP products is, of course, going to vary with the computer. The Spectrum's capabilities don't make full-blown DTP an attractive prospect for any software developer, but Tasman Software, publisher of the acclaimed *Tasword,* produces fonts package for use with *Tasword,* which enhances the original if you want special effects.

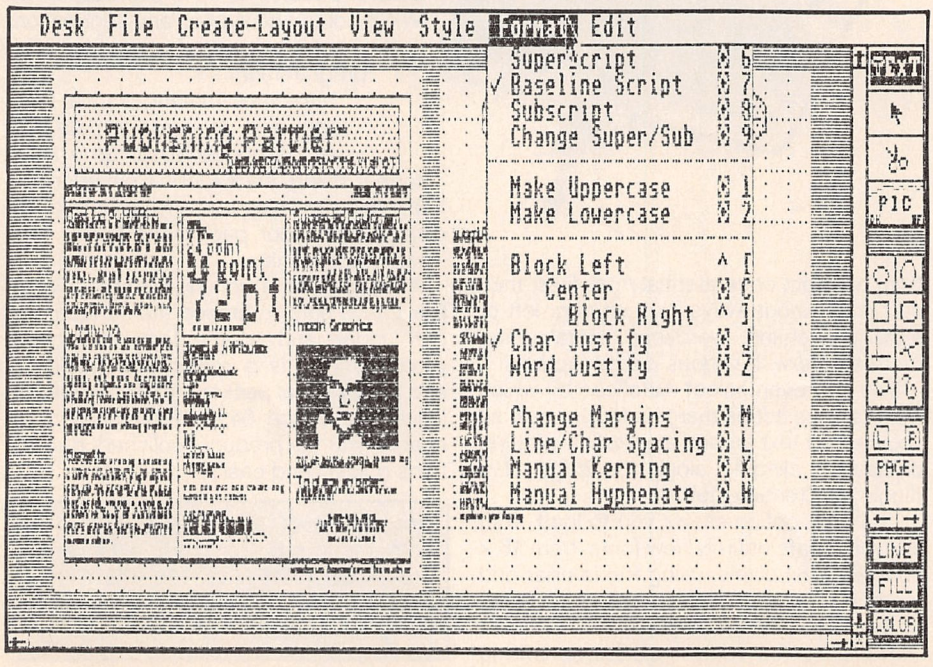
On the Commodore 64 and Amstrad CPCs, Advanced Memory Systems holds sway with its mouse and *Stop Press* (formerly *Pagemaker*) packages. The Commodore 64 version, newly available is reviewed elsewhere in this issue.

However, it is (inevitably) on the 16-bit machines, that you begin to get most idea of the power and versatility of desktop publishing.

SoftLogic's *Publishing Partner* and Mirrorsoft's *Fleet Street Publisher* on the Atari ST, with thier laser printer drivers (*FSP*'s are, we understand, now available) can begin to tap the professional markets. With Atari's much-heralded DTP system (Mega ST plus laser printer, but with the choice of software being left up to the buyer) due to be ready this year, there is some competition to provide the best system.

Whether DTP for the smaller micro will take off in the way that companies appear to think it will, judging by the number of new DTP products, is a difficult question. It is perhaps more likely that it will be the word processors with plenty of fonts and an ability to port in graphics from established graphics packages which will suit many people's needs better.

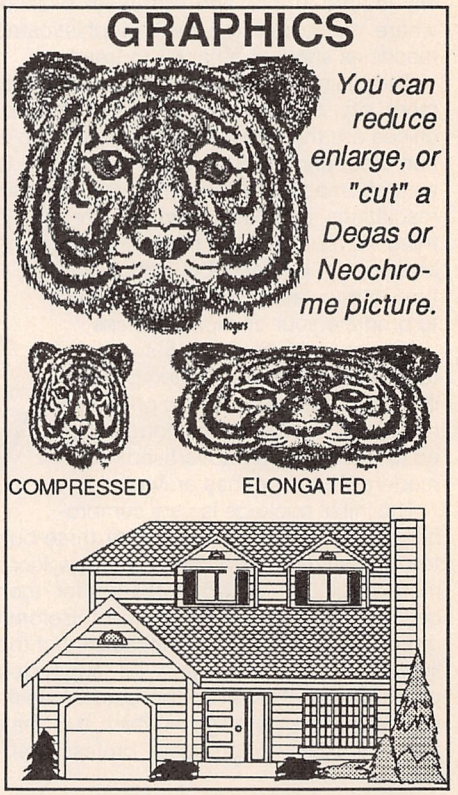
***Publishing Partner:* an easier way to integrate text and graphics?**



Publishing Partner

Publishing Partner for the Atari ST will inevitably be compared to *Fleet Street Publisher,* which has been available for a few months now and now has the laser printer driver software which turns such packages into a really professional proposition. *Publishing Partner* has had such software for some time, and comes complete with a disc of clip art, a font editor, monochrome and colour version discs and a thick handbook.

The main difference between *Publishing Partner* and *Fleet Street Publisher* is that the former system has a slightly more powerful word processor, although it's still possible



Typefaces and styles: a selection from *Publishing Partner*

to prepare your text on another word processor and load it into the system. *Publishing Partner* also uses a slightly unconventional implementation of Gem – the text cursor is a sort of double bracket which moves around on a matrix of dots, giving you a clear indication of your page layout.

Icons on the right of the screen allow you to enter text or picture edit modes, to crop pictures, to draw shapes such as squares or circles, to select the thickness of lines and even the colour of fills, and to generally shoot about the page and move to other pages. As with *Fleet Street Publisher* you

continued on page 19 ▶

Publishing Partner

can create rulers at the top and sides of the page to help in layout, and can show the page in full or in sections. Of course, the text becomes almost unreadable when you show a full page on the screen. The idea is to satisfy yourself as to details in word processor mode, and work on the general layout later.

Point size and fonts can be changed at will although there isn't such a choice of fonts as in *Fleet Street Publisher*. However, there is a little more flexibility in inserting, editing and deleting text. Text can be 'imported' from any Ascii file while pictures can be imported from *Degas* or *Neochrome*. Both text and pictures can be re-sized to fit the available space.

An Apple LaserWriter or a PS800 laser printer will give the best printout quality, although it may be worth your while to wait for Atari's own upcoming laser device. Epson-type printers give perfectly acceptable results though, and overall page layout is completely at your command. You can set top, bottom, left and right margins, number of columns and space between columns, page numbers, picture sizes, box rules, and headlines in any size and degree of emphasis.

The main way in which *Publishing Partner* differs from *Fleet Street Publisher* is that it's simpler to use. *Fleet Street Publisher* makes the mistake of assuming that most of its users are experienced publishers who have lost everything on the stock market and who now have to rely on an Atari ST for their livelihood. This terms such as pica points, kerning and gutters are expected to be common parlance amongst users.

Publishing Partner, on the other hand, deals with these terms where necessary (pointing out that kerning refers to the way in which letters like A and V in "naval" can slightly overlap each other) but doesn't ram them down your throat. There are also some (possibly) handy functions, some of which don't exist in *Fleet Street Publisher.* The editing functions include underline and double underline, invert characters, italicise or backslant, mirror words, strike through (as in – "not £200! Not £100! But £99!") and reverse text, which prints text in white on a black background.

You can also print characters in wide (double the normal size) and use subscript or superscript to raise or lower characters as compared to the baseline. Justification, indents and other paragraph layout functions are, of course, all selectable and there are various search and replace modes normally associated with word processors.

Apparently, due to some delays with the GDOS printer control system, there's a limited number of fonts available for *Publishing Partner* at the moment. This is one of the system's main disadvantages.

Overall, *Publishing Partner* is a pretty attractive package. Apart from a slightly Americanised slant in the handbook it's fairly easy to get into and will offer you all the basic layout abilities which you may need to create handouts, broadsheets, amateur magazines and so on.

You can insert graphics and even digitised pictures stored in file-compatible manner fairly easily, and the word processing capabilities are better than on some competing packages.

However, *Publishing Partner* is not the most versatile desktop system in the world, and if you already have some experience in printing you may find it under-powered for your needs.

It does work with laser printers however (the forthcoming Mega ST is needed here) and that will be an advantage if your publishing efforts take off and start to make you some money.

Mark Jenkins

Program *Publishing Partner* **Micro** Atari ST **Price** £159.85 **Supplier** Silica Shop, 1–4 The Mews, Hatherley Road, Sidcup, Kent.

TYPE STYLES

Backslant
Bold
Double Underline
Italicize
Light
Mirror ɹoɹɹiM
Outline
Outline Bold
Reverse Text

Shadow
Shadow Bold
~~Strike Through~~
Underline
ɥbsiɹɐ ɹoʍu

Tall or Wide

or you can mix and match any style above, to give over 4000 different combinations, for example:

Tall Bold Shad

Suppliers Guide

Amstrad CPCs

AMX mouse and Stop Press **Price** £79.99 **Supplier** Advanced Memory Systems, 166 Wilderspool Causeway, Warrington WA4 5QA (0925 413501)

Tas-Sign **Price** £29.95 (6128 disc only) **Supplier** Tasman Software, Springfield House, Hyde Terrace, Leeds LS2 9LN (0532 438301)

Amstrad PCWs

The Desktop Publisher **Price** £29.95 **Supplier** Database Software, Europa House, Hazel Grove, Stockport (061 456 8383)

Fleet Street Editor Plus **Price** £69.95 **Supplier** Mirrorsoft, Athene Huse, 66-73 Shoe Lane, London EC4 (01-377 4900)

Newsdesk International **Price** £49.95 **Supplier** Electric Studio (0462 834864)

BBC series

Fleet Street Editor Price £49.00 **Supplier** Mirrorsoft, address as above

AMX mouse and Stop Press **Price** £79.99 **Supplier** AMS, address as above

Commodore 64

AMX mouse and Stop Press **Price** £69.99 **Supplier** AMS, address as above

Atari ST

Publishing Partner **Price** £159.95 **Supplier** Silica Shop, 1-3 The Mews, Watherley Road, Sidcup, Kent (01-3038 1111).

Supplier Mirrorsoft, address as above.

THESE ARE SOME

Of the many Fonts

Typestyles and

SPECIAL EFFECTS

that are possible with FONTASY!

SOME ARE SILLY

Some are more Useful!

Fonts: a Font package can be used when you want something more than conventional dot matrix output (from *Fontasy* – see page 20).

PC pagemaking

Fontasy and *Newsmaster* are two budget PC pagemakers that could not be more different in the way they work. The contrasting approaches taken have led to enormous differences in the ease of use and the quality of output. Both programs come with Colour Graphics Adaptor (CGA), Enhanced Graphics Adaptor (EGA), and monochrome graphics options.

Newsmaster is a menu and icon-driven pagemaker that is a dream to use – you can learn to drive it in ten minutes thanks to its logical design. The screen display is superb – very fast, icon-driven but not excessively so, with a clear display.

The page layout choices are fairly primitive. Almost any number of columns can be used, but they are all automatically set to the same size. There can be one headline which crosses all of the columns, again of a pre-set size, though graphics can override any of the current column settings. Text can be left, right, fully-justified, or centred. Fonts are selected from a menu or 'picked up' from the style under the cursor. Different types and point sizes can be mixed freely throughout the text and text can be imported from an Ascii file.

Editing the text is amazingly easy, just position the cursor and delete left or right or insert. It is possible to select areas of text for cutting and pasting or to change the font at a stroke. You can work on the page in a variety of sizes on screen. The normal one shows everything at its final printed size; this and the full page view are most useful.

Clip art is selected from a menu. The supplied pictures are superb but none of the images are very large. They can be stretched but inevitably become more blocky as this is done. There are about 30 fonts and a hundred or so graphics.

The quality of print is also just reasonable, though it is very good for an ordinary Epson. Unfortunately it does not get any better if you use a 24-pin or a laser printer – even though these use smaller dots they are clumped together to give a facsimile of the ordinary 9-pin dot matrix resolution.

On paper the specifications of *Newsmaster* may look fairly basic, but I can't stress enough how enjoyable it is to use, and how quickly you can produce high-quality results, as long as your typographical requirements aren't too great.

Fontasy

Fontasy uses a one-to-one system whereby each screen dot represents one dot on the page. This means that the 'size' of the screen page changes with the output device, eg, if you want to use a laser printer with a 640K PC you are limited to working on a fraction of the page. If you use a standard Epson you can work on the equivalent of a full A4 page.

To compensate, there are various tricks that allow you to magnify the printed image, either horizontally or vertically, or both, with a variety of software tricks employed to stop any reduction in quality. A variety of compensation factors are necessary depending on the pixel shape of the graphics adaptor used, and the size of dots on the printer. Full page images are therefore possible, but there is a lot more work involved – and it's memory expensive.

In common with most pagemakers, once text is committed to the screen it is 'forgotten' and subsequently indistinguishable from any other graphics, borders, etc. There is no automatic insert mode, and only the last printed character can be deleted easily – or a whole word at a time using a software trick that looks for a likely gap between the words. Unlike *Newsmaster* any graphics or other text that overlap the current cursor line are also deleted.

Once you have moved off a line you cannot easily go back to insert or delete. Having changed fonts getting back to the original position is also awkward. To make this possible there is a very good 'floating character' option that lets you position the start of the text with pixel accuracy. Things aren't all bad – it is perfectly possible to centre existing lines, or to justify them between chosen margins.

The strengths of *Fontasy* are, however, impressive. To start with, the graphics options are much more versatile than *Newsmaster*'s. You can import screens created with other programs or 'grabbed' by a digitiser, and you have a selection of basic drawing tools such as patterned fills, circle and line and free hand drawing.

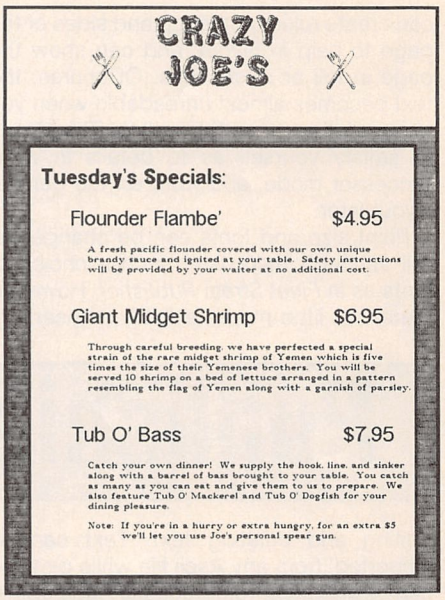
Fontasy can read a command file from disc to take the place of instructions taken from the keyboard. This has many uses ranging from creating rolling demonstrations, slide shows and so one, to producing templates of documents that load in text.

The output on a 24-pin printer is superb. Not only does it exploit the full printer resolution, it also has lots of features such as proportional spacing and kerning.

The optional upgrade, *Fontasy Publisher* (£39), adds a menu-driven control system and some extra features to your existing program. If you can afford it the extra help this gives is well worth while. Once this is installed you can add the EMS option (£49) which has the ability to support extended memory boards, such as the JRAM board. This is very useful for full pages of laser print, and can store several pages of normal resolution. It also adds the ability to use very large fonts which make it more versatile on the laser and 24-pin machines.

The basic *Fontasy* discs come with roughly the same number of fonts but fewer graphics than *Newsmaster*. There is an incredible range of optional fonts and artwork discs available, but at £25 a disc these can add an awful lot to the price of the package, and my own feeling is that they would sell much better at £10. A Font designer/editor utility is available at £25.

Tony Kendle



Effects created by *Newsmaster*

***Fontasy*: a selection of available faces**

Program *Fontasy* **Micro** Any PC Compatible **Price** From £70 **Supplier** CTRL-ALT-DELI, Milton Keynes.

Program *Newsmaster* **Micro** Any PC Compatible **Price** £59 **Supplier** Polyrom Ltd, Poole.

DESKTOP PUBLISHING WITH PUBLISHING PARTNER™ ON THE ATARI ST

ATARI ST SOFTWARE

1 WHAT IS DESKTOP PUBLISHING?

Desktop Publishing is a method by which documents can be produced using a computer, software and a printer. These documents are near professional appearance and cost only a fraction of the price which you might otherwise pay to a designer, artwork studio and printer. Because the 'middle men' are eliminated from the production process, desktop publishing allows the user to retain total control over his or her documents, making last minute updates without panic and without incurring extra charges for 'rush' work.

2 WHAT CAN I USE IT FOR?

As we all make use of the printed word in one way or another in our daily lives, the applications for Desktop Publishing are all around us. If you belong to a club or society or if you run your own business, the possibilities are endless! Our list of example applications will give you some other ideas.

- Advertisements
- Application Forms
- Brochures
- Business Contracts
- Charts & Tables
- Club Certificates
- Club Newsletters
- Dance Tickets
- Distribution Leaflets
- Fayre Programmes
- Invitation Cards
- Invoices
- Labels
- Menus
- Office Forms
- Order Forms
- O/head Transparencies
- Personal Cards
- Personal Letterheads
- Presentations
- Price Lists
- Special Offer Leaflets
- Technical Sheets
- Work Estimates

3 PUBLISHING PARTNER

Publishing Partner, from SoftLogik Corp™, includes all of the features which you would expect in a good Desktop Publishing package. It combines word processing, page layout and graphics facilities all in one program, allowing you to create 'stunning' documents on your Atari ST. First you can do a rough page design and start adding blocks of copy. See how it fits. See how it looks. See how it flows onto the next page. Make some changes. Try a different type style, or a different size, or some borders, some shapes, or even some pictures. Because Publishing Partner incorporates WYSIWYG (What You See Is What You Get), you'll see instantly if your new idea works or not. The computer's screen will show you just how the page will look when it prints - no more guesswork. You can adjust fonts, character sizes and even character spacing, anytime and anywhere on the page. Watch an ordinary letter transform into a professional looking piece right before your eyes, as you experiment with mixing graphics and text. And, when you want to see a 'hard copy' of your masterpiece, just send it to any one of the printers which the program supports (the list is growing all the time).

SoftLogik Corp™

SoftLogik Corp™ was set up in the USA by Shawn Fogle and Deron Kazmaier to produce quality desktop publishing software with uncompromising power and features. Publishing Partner was developed after 1½ years of research, working with typesetters and printers and the results achieved are outstanding.

4 SIMPLE, POWERFUL, AFFORDABLE

Printing and publishing is a fairly complex business which takes years of training and experience to master. You wouldn't think so with Publishing Partner, which takes full advantage of the ST's user friendly GEM environment. It is so user friendly and easy to understand, most people find they can produce their first document without even opening the fully comprehensive 159 page manual which accompanies the program. Using the mouse to manipulate the self explanatory pull down menus and windows, you can be up and running in no time, creating a variety of documents quickly and easily. In addition, the flexibility of Publishing Partner allows you to choose between mouse or keyboard operation, whichever suits your personal preference. Although simple to use, Publishing Partner is by no means a simple program. Quite the contrary. Behind the user friendliness of GEM, lies a most complex and powerful publishing tool. The combination of Publishing Partner and Atari's powerful low-cost ST computers has brought an affordable alternative to the desktop publishing systems currently available from Atari's competitors.

5 THOUSANDS OF TYPE STYLES

This is no exaggeration. Unlike most other desktop publishing software packages, which offer you 2 or 3 different fonts, Publishing Partner gives you true flexibility of over 4,000 type styles per font. Publishing Partner offers you 14 variations of each font:

BACKSLANT	MIRROR	STRIKE THROUGH
BOLD	OUTLINE	TALL
DOUBLE U/L	REVERSED	UNDERLINE
ITALICS	SHADOW	UPSIDE DOWN
LIGHT		WIDE

And you can 'mix and match' any number and combination of styles to your own requirements. The total number of possible permutations is over 4,000. And that's not all, each style can be used in any one of 216 sizes in one point increments from 1 point to 216 points! All this is achievable on an unexpanded 520ST with just 512K RAM! Other competing packages require 1024K RAM just to get the larger sizes above 72 point and still can't match all of the variations available.

Publishing Partner is a trade mark of SoftLogik Corp™.

6 WORD PROCESSING

Publishing Partner contains the power and features that you would expect to find on a dedicated word processing package. In addition it includes facilities which a professional typesetting machine would offer. For example the program can cope with 216 different type sizes, with over 4,000 style variations of each one. The following are some of the facilities you will find within the capabilities of Publishing Partner:

* Adjust margins for any column
* Change block to uppercase or lowercase
* Change margin indents
* Character spacing from -128 to +127
* Copy text to and from the buffer
* GEM based
* Import and export files
* Insert and delete pages
* Justifies right/left/centred as you type
* Justifies to the character/word
* Kerning from -128 to +127
* Line spacing/leading in ½ points from -64 to +57
* Link columns together
* Macros
* Manual Hyphenation
* Merge files together
* Optional grid & ruler display
* Over 4,000 type style variations of each font
* Page numbering
* Pica, Inches or Centimetre measuring system
* Print to paper vertically or horizontally
* Read & merge any ASCII file
* Search and replace
* Tabs for charts/tables
* Unlimited headers & footers
* User definable page size
* User variable superscript/subscript characters

7 PAGE LAYOUT

Whatever you require, custom logos, unique borders, unusual letterheads etc. Publishing Partner is your solution. After all, it was specially designed by professionals who realize that there's more to your computer than just typing letters.

* Accurate to 3 decimal places
* Adjust character size from 1 to 216 points
* Auto text flow between columns
* Change columns on finished page
* Display 15%-1500% of original size
* Display actual size
* Display multiple pages/rulers/text routing
* Layout multiple columns
* Print to disk
* Set auto text routing
* Snap to guides
* Superimpose text on tint or tint on text

SEEING IS BELIEVING

We have already told you how powerful Publishing Partner is and how easy it is to use. However, the recipients of your finished work will only be able to gauge the package by the end results of your work. The true test of any Desktop Publishing software is in the output it produces and it is here that Publishing Partner excels. With its graphics capabilities and the thousands of type styles it produces, there is no end to the design possibilities which you can create. And, with drivers for a variety of printers, including Postscript at no extra charge, you can be sure that you will be able to output in the quality your work deserves. The output quality is truly remarkable. But don't just take our word for it. Before you go any further with your enquiries into Desktop Publishing, return the coupon below for samples of Publishing Partner's output on a variety of printers. We will also send you details and prices of each printer as well as further information on Publishing Partner and the Atari range of ST computers. We don't expect you to take our word for it. We want you to see for yourself how Publishing Partner outshines the competition. So, complete and return the coupon today. Remember, SEEING IS BELIEVING!

8 GRAPHICS

Not only can you load any Degas, N-Vision, Neochrome or digitized pictures into your Publishing Partner files, you can also enlarge or reduce them for an exact fit. Or, you can copy just a section of a picture and then paste it into your document as many times as you want. You can still go back and resize it at any time or crop it to delete unwanted areas.

* 3 types of line ends, square/rounded/pointed
* 7 types of line which are all editable.
* 7 weight lines ranging from ½pt to 6pt
* 40 fill patterns each with a border option making a total of 80 fill options
* Ability to produce separations for 2 colours
* Copy graphics to and from clipboard
* Cut, paste, copy or crop graphics
* Import graphics from third party graphic programs such as Degas, Neochrome, N-Vision or any art program that produces compatible ASCII files
* Select colours to use and print with
* Toolbox features include: Circles, ellipses, boxes, rounded corner boxes, horizontal/vertical lines, diagonal lines, polygons and free hand drawing

9 OUTSTANDING OUTPUT

Publishing Partner is a unique program with a large variety of printer drivers for both laser and dot matrix printers. Dot matrix is supported in both 80 column and 132 column mode, so you could even produce a tabloid width newspaper (11½" wide) on a wide body printer. Drivers are also available for the new technology 24 pin dot matrix printers which can give a fine resolution of 360×360 compared with laser printers at 300×300. The current drivers (included FREE with the program) are as follows with new ones being written on a weekly basis:

9 PIN DOT MATRIX (Various Res)

* Atari SMM804
* Blue Chip M120/10
* Cal Abco Legend 880
* C Itoh Prowriter
* Mannesman Spirit-80
* NEC 8023
* Panasonic KXP
* Star Gemini & SG

9 PIN DOT MATRIX (240×216 Res)

* Citizen MSP
* Epson RX/FX/EX
* Mannesman Tally MT
* Star NX/SD

18 PIN DOT MATRIX (240×288 Res)

* Okidata Microline 292
* Okidata Microline 293

24 PIN DOT MATRIX (360×180 Res)

* C Itoh C-715
* Epson LQ
* Epson SQ
* Toshiba P321

24 PIN DOT MATRIX (360×360 Res)

* NEC P6/P7
* NEC XL new series

LASER PRINTERS (300×300 Res)

* Centronics PP-8 in Epson or H.P. Laserjet mode 1½Mb RAM
* Any other H.P. Laserjet compatible with 1½Mb RAM
* QMS PS800 or Apple LaserWriter - Postscript
* Any other Postscript compatible printer

OFFICIAL UK VERSION

The official UK version of Publishing Partner has a pound (£) sign as a standard part of its character set. Other versions have also been imported unofficially from the USA and have a dollar ($) sign instead of a £ sign. These versions will not be supported by the UK distributors or their dealers. The UK version also contains clip art, different fonts and a full range of printer drivers. Ensure that you buy the official UK version, not an unofficial import with incorrect characters.

£139.00

(+VAT=£159.85)

Publishing Partner is available from Atari ST Dealers throughout the UK. If your local dealer does not have Publishing Partner in stock, it can be obtained by mail order (Postage & Packaging free) from:

SILICA SHOP Ltd, 1-4 The Mews, Hatherley Road, Sidcup, Kent, DA14 4DX **Tel: 01-309 1111**

INFORMATION REQUEST FORM

To: Silica Shop Ltd, PCWK 1408, 1–4 The Mews, Hatherley Road, Sidcup, Kent DA14 4DX

Please send me further details on: DESKTOP PUBLISHING

Mr/Mrs/Ms:..... *Initials:*..... *Surname:*.....

Address: .....

.....

.....

.....

..... *Postcode:*.....

I am interested in the Atari ST ☐

I already own an Atari ST ☐

PCW 0787

FUNCTIONS IN LISP

Kenn Garroch continues his guide to the language Lisp with an explanation of functions and recursion.

Last week, I discussed the fact the Lisp deals with lists of information, and that the lists can be split up with the *car (head of list)* and *cdr (rest of list)* commands.

Since Lisp is a programming language, it needs some method of writing programs. This is where the *defun* or *de* function comes in. What the function is called depends upon your version of Lisp. However, the two most common versions are DE and DEFUN [I'll use *de* since it is shorter; by the way, the case – upper/lower – does not usually matter].

de is used for defining functions, and comes in number of different forms, the main type is EXPR. This has the form:

```
(de fnname (arg 1 arg 2 argn)
(Some other functions to be executed)
```

Here the arguments are in brackets and as such are evaluated on entry to the function. There can be any number of arguments. For example the function:

```
(de prnt (arg)
  (print arg))
```

This simply prints the argument, ie, *(prnt 'a)* prints the letter *a*. Note that the *a* was preceded by quote [could also be written *(prnt (quote a))*].

This defines a function called *test* with an argument *torf*. Entering *(test t)* will give the result true, and print true, ie, in the first set of brackets after the *cond*, torf evaluates to true so the next set is evaluated, printing true. On the other hand *(test nil)* gives and prints false. Here the null function is used to invert the status of *torf* making it true. Note that the first set of brackets is *(torf (print 'true))*.

True or false

The *torf* is not bracketed because it need not be evaluated. It is defined in the argument to be true. The double brackets in the second *cond* argument *((null torf) (print 'false))* cause *null torf* to be worked out, giving the result true if *torf* is false, and false is *torf* is true. Try *(test)*, ie, with no arguments: it gives false.

This is because if an argument is not given it is automatically set to be false or nil [empty]. Another thing to try is to enter *torf*. You will get the error that it is undefined. This is because it is local to the function, since it is an argument. What is more, it is local to that particular level of the function. If the function called itself, for example:

```
(de silly (arg)
(silly (difference arg 1)))
```

A function, in its simplest form, consists of a series of other functions strung together, so

```
(de prnt (arg)
(print arg)
(print arg)
(print arg))
```

will print the argument three times. Obviously this is not a very good method. The slickest method is known as recursion but loops are also possible.

Before looking at recursion, I'll describe the main decision function – *cond*. This takes a number of arguments, each of which consists of a list. The first item in the list [which can itself be a list as long as it gives true or nil] is evaluated, and if it is true, the rest of the items in the list are evaluated one by one. If the first item is false [nil in Lisp is the same thing] then *cond* goes on to look at the list. Once it has found a true [usually denoted by the letter *t*] and evaluated the *cdr* of the list [the rest of it], the *cond* comes to an end. It is similar to IF . . . THEN constructions in Basic.

For example:

```
(de test (torf)
(cond (torf (print 'true))
  ((null torf) (print 'false))))
```

Say, *(silly 10)* were entered, first time through, this gives *silly 9* since *difference* subtracts one from *arg*, then *silly 8* and so on. Don't try this since it will probably hang up the computer.

This idea of local variables is important to recursion. The function

```
(de recur (lst)
  (print lst)
  (cond (null lst) nil)
    (t (recur (cdr lst))))
  (print lst)
```

demonstrates the recursive process. Enter it with a list such as *(recur (a b c))*. This gives the result

```
(a b c)
(b c)
(c)
nil
nil
(c)
(b c)
(a b c)
```

and returns the value (a b c).

What is happening is that first of all, *(a b c)* is represented as *lst*, the argument. The first *print* prints this out. Then *cond* is used to check, first of all, whether the list is empty, ie, whether *(null ( ))* – ( ) is an empty list and therefore nil – gives true. If this is so, then nil is returned nil and the *cond* is ended.

Since on the first entry, the list is *(a b c)*, it is not empty and so the next *cond* argument is checked. This starts with *t* or true so the following brackets must be evaluated.

These say *(recur (cdr lst))* which means call *recur* again but this time take the first item out of the list and just pass the rest as the argument. At this point, the function *recur* is started again but with the new argument *(b c)*, so the first *print* prints this. The same thing happens as before, since the list is still not empty, and continues until it is.

End of function

Now, the first *cond* argument comes into play, and nil is evaluated, ie, nothing is done, and the *cond* ends. This time, the second *print* in the routine is used to print nil, since that was the argument. The function then comes to an end. However, it was called from within the *recur* function and the flow reverts back to the calling function. The next thing to do is, therefore, to execute the second *print* and this time the argument is *(c)* since *lst* is local, its *cdr* *(nil)* was passed to the *recur* that has just been returned from.

The process continues until all of the *recur*'s unwind themselves and the top level is reached giving the original arguments as the end result, *(a b c)*.

Sophisticated

This may sound very complicated; however, changing the definition of *recur* to

```
(de recur (lst)
  (print 'in)
  (print lst)
  (cond (null lst) nil)
    (t (recur (cdr lst))))
  (print 'out)
  (print lst))
```

may make it a little clearer since it is possible to see which prints are being used, and hence where the program flow is.

Recursion is a sophisticated programming method and it takes a little practice to get used to it. However, once you do, you will be surprised how clever it is.

Next week, we'll have further examples of recursion, plus a look at more of Lisp's features.

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Space Blaster

John Taylor

When you've typed all the data in, run the program and if it is bug free you will be prompted to save the code. The process takes five minutes so don't panic if nothing appears to be happening.

The resultant file can be reloaded as required and started with *SYS 24576*.

```
2020 DATA 8D,B1,5F,A9,9C,8D,FA,07,20,26,6B,60,A9,01,8D,AD,5F,A9,03,8D,  2301
2030 DATA B2,5F,A9,9C,8D,FB,07,20,26,6B,60,A9,01,8D,AE,5F,A9,03,8D,B3,  2342
2040 DATA 5F,A9,9C,8D,FC,07,20,26,6B,60,A9,01,8D,AF,5F,A9,03,8D,B4,5F,  2262
2050 DATA A9,9C,8D,FD,07,20,26,6B,60,A9,01,8D,B0,5F,A9,03,8D,B5,5F,A9,  2339
2060 DATA 9C,8D,FE,07,20,26,6B,60,A2,04,BD,AC,5F,F0,20,DE,B1,5F,D0,1B,  2454
2070 DATA A9,03,9D,B1,5F,FE,FA,07,BD,FA,07,C9,9F,D0,0C,AD,15,D0,3D,7B,  2724
2080 DATA 68,8D,15,D0,DE,AC,5F,CA,10,D8,60,FB,F7,EF,DF,BF,04,08,10,20,  2704
2090 DATA 40,0E,09,04,0C,0E,07,02,08,0E,07,0C,02,03,05,08,04,07,06,0E,  216
2100 DATA 03,0A,04,07,08,09,02,AD,B6,5F,F0,01,60,AD,9E,5F,CD,1B,D4,90,  1844
2110 DATA 51,A2,04,AD,15,D0,3D,80,68,F0,44,BD,AC,5F,D0,3F,8A,18,69,02,  2246
2120 DATA 0A,A8,C8,B9,00,D0,C9,A4,B0,31,18,69,16,8D,0F,D0,88,B9,00,D0,  2405
2130 DATA 8D,0E,D0,AD,10,D0,29,7F,8D,10,D0,AD,10,D0,3D,80,68,F0,08,AD,  2404
2140 DATA 10,D0,09,80,8D,10,D0,EE,B6,5F,AD,15,D0,09,80,8D,15,D0,60,CA,  2448
2150 DATA 10,B1,60,8A,18,69,02,0A,69,01,A8,B9,00,D0,69,15,CD,03,D0,B0,  1953
2160 DATA 01,60,E9,2A,CD,03,D0,90,02,18,60,AD,10,D0,29,02,F0,22,AD,10,  1957
2170 DATA D0,3D,80,68,D0,3C,A9,01,8D,B7,5F,AD,02,D0,8D,B8,5F,A9,00,8D,  2471
2180 DATA B9,5F,88,B9,00,D0,8D,BA,5F,4C,93,69,AD,10,D0,3D,80,68,F0,1A,  2515
2190 DATA A9,01,8D,B7,5F,88,B9,00,D0,8D,B8,5F,A9,00,8D,B9,5F,AD,02,D0,  2511
2200 DATA 8D,BA,5F,4C,93,69,A9,00,8D,B7,5F,8D,B9,5F,AD,02,D0,88,38,F9,  2583
2210 DATA 00,D0,B0,0F,B9,00,D0,8D,B8,5F,AD,02,D0,8D,BA,5F,4C,93,69,AD,  2518
2220 DATA 02,D0,8D,B8,5F,B9,00,D0,8D,BA,5F,38,AD,B8,5F,ED,BA,5F,8D,BB,  2799
2230 DATA 5F,AD,B7,5F,ED,B9,5F,F0,02,18,60,AD,BB,5F,C9,18,B0,F7,38,60,  2680
2240 DATA AD,0F,D0,18,6D,BC,5F,8D,0F,D0,C9,F0,90,0D,AD,15,D0,29,7F,8D,  2485
2250 DATA 15,D0,A9,00,8D,B6,5F,60,A9,00,85,FD,85,FB,A9,04,85,FC,A9,D8,  2794
2260 DATA 85,FE,A2,28,AC,1B,D4,A9,2E,91,FB,AD,1B,D4,91,FD,CA,D0,F1,E6,  3302
2270 DATA FC,E6,FE,A5,FC,C9,07,90,E5,60,A9,40,8D,04,D4,A9,40,8D,04,D4,  3010
2280 DATA A9,01,8D,08,D4,A9,0A,8D,07,D4,A9,06,8D,0C,D4,A9,FC,8D,0D,D4,  2397
2290 DATA A9,81,8D,0B,D4,A9,9C,8D,F8,07,20,62,6A,EE,F8,07,20,62,6A,EE,  2586
2300 DATA F8,07,20,62,6A,A9,00,8D,15,D0,20,62,6A,20,62,6A,A9,80,8D,0B,  1951
2310 DATA D4,20,62,6A,20,62,6A,A9,05,8D,9D,5F,20,62,6A,20,23,62,20,BE,  1874
2320 DATA 69,AD,15,D0,09,01,8D,15,D0,A9,80,8D,F8,07,CE,27,04,60,A0,FF,  2340
2330 DATA A2,96,CA,D0,FD,88,D0,F8,60,78,A9,00,8D,04,D4,8D,0B,D4,A9,20,  2874
2340 DATA 8D,27,04,A9,00,8D,10,D0,A9,01,8D,26,D0,A9,0B,8D,25,D0,A9,FF,  2265
2350 DATA 8D,1C,D0,A9,0F,8D,15,D0,A2,07,A0,A6,98,9D,F8,07,68,CA,10,F8,  2592
2360 DATA A9,FF,8D,1D,D0,8D,17,D0,A2,07,BD,EC,6A,9D,00,D0,BD,FC,6A,9D,  2943
2370 DATA 27,D0,CA,10,F1,20,62,6A,20,62,6A,20,62,6A,20,62,6A,A2,07,BD,  2008
2380 DATA F4,6A,9D,08,D0,CA,10,F7,A9,FF,8D,15,D0,AD,00,DC,29,10,D0,F9,  2889
2390 DATA AD,11,D0,29,EF,8D,11,D0,A9,05,8D,27,04,4C,13,60,46,64,7A,64,  1985
2400 DATA C6,64,FA,64,46,96,7A,96,C6,96,FA,96,0E,06,06,0E,02,0A,0A,02,  1952
2410 DATA A9,50,8D,00,D4,8D,02,D4,A9,03,8D,03,D4,A9,08,8D,05,D4,A9,F4,  2433
2420 DATA 8D,06,D4,A9,04,8D,01,D4,A9,41,8D,04,D4,60,A9,08,8D,0C,D4,A9,  2284
2430 DATA 02,8D,08,D4,A9,0A,8D,07,D4,A9,F9,8D,0D,D4,A9,81,8D,0B,D4,A9,  2517
2440 DATA 0A,8D,BD,5F,60,AD,BD,5F,F0,04,CE,BD,5F,60,A9,80,8D,0B,D4,60,  2575
2450 DATA A9,00,85,FB,A9,20,85,FC,A9,83,85,FD,A9,6B,85,FE,A0,00,B1,FD,  3078
2460 DATA 91,FB,E6,FD,D0,02,E6,FE,E6,FB,D0,02,E6,FC,A5,FC,C9,29,D0,EA,  3847
2470 DATA A5,FB,C9,C1,D0,E4,60,50,00,05,50,14,05,50,14,05,50,69,05,50,  1907
2480 DATA 96,05,50,96,05,50,96,05,A2,55,8A,A2,69,8A,A9,69,6A,A5,AA,5A,  2220
2490 DATA A5,BE,5A,A6,C3,9A,A6,C3,9A,F6,C3,9F,F5,BE,5F,FD,69,7F,F3,55,  3418
2500 DATA CF,F0,FF,0F,F0,00,0F,F0,00,0F,00,50,00,05,50,00,05,50,00,05,  1482
2510 DATA 50,00,05,50,00,05,50,00,05,50,00,05,A0,00,0A,A0,00,0A,A0,00,  840
2520 DATA 0A,A0,00,0A,A0,00,0A,A0,00,0A,A0,00,0A,F0,00,0F,F0,00,0F,F0,  1440
2530 DATA 00,0F,F0,00,0F,F0,00,0F,F0,00,0F,F0,00,0F,00,E4,00,E4,E4,00,  1719
2540 DATA E4,E9,03,A4,E9,03,A4,EA,AA,A4,3A,AA,90,0E,AA,40,03,E5,00,03,  2451
2550 DATA 21,00,03,21,00,03,E5,00,03,E5,00,03,E5,00,03,01,00,03,E5,00,  1001
2560 DATA 00,00,00,00,00,00,00,00,00,00,00,00,00,00,00,00,00,00,00,00,  0
2570 DATA 00,00,00,00,00,04,00,10,05,00,50,06,00,90,06,14,90,05,55,50,  595
2580 DATA A5,D7,5A,A5,14,5A,A1,14,4A,01,41,40,01,55,40,01,69,40,01,41,  1516
2590 DATA 40,01,00,40,01,55,40,00,55,00,00,00,00,00,00,00,00,00,00,00,  364
2600 DATA 00,00,00,00,00,00,00,00,00,00,00,00,00,AA,00,02,AA,80,0A,AA,  650
2610 DATA A0,09,69,60,29,28,68,29,28,68,2A,AA,A8,2A,BE,A8,28,AA,28,0A,  1780
2620 DATA 00,A0,0A,AA,A0,02,AA,80,00,AA,00,00,00,00,00,00,00,00,00,00,  970
2630 DATA 00,00,00,00,00,00,FF,00,AA,00,00,BA,00,02,BA,80,02,BA,80,03,  1246
2640 DATA BA,C0,02,38,80,02,BA,80,0A,EA,A0,0A,EA,A0,0A,D6,A0,0A,69,A0,  2347
```

```
2650 DATA 02,EA,80,02,BA,80,00,BA,00,00,BA,00,00,BA,00,00,BA,00,00,BA, 1610
2660 DATA 00,00,BA,00,00,BA,00,00,38,00,FF,00,AA,00,00,AA,00,3F,AA,FC, 1508
2670 DATA 3B,FF,FC,3B,FF,FC,38,00,3C,38,00,3C,3A,96,BC,3A,96,BC,3A,96, 2364
2680 DATA BC,3B,FF,FC,3B,FF,FC,39,5D,DC,39,FD,DC,39,FD,DC,39,5D,DC,3B, 3179
2690 DATA DD,DC,3B,DF,7C,39,5F,7C,3F,FF,FC,0A,AA,A0,FF,02,AA,00,02,AA, 2632
2700 DATA 00,0A,9A,80,0A,9A,80,2A,9A,A0,29,99,A0,26,9A,60,26,9A,60,26, 1908
2710 DATA 9A,60,26,9A,60,26,9A,60,29,99,A0,29,99,A0,2A,9A,A0,0A,AA,80, 2198
2720 DATA 02,AA,00,02,22,00,02,22,00,02,AA,00,02,AA,00,00,B8,00,FF,00, 1027
2730 DATA 08,80,08,20,8C,4B,48,E2,06,19,22,4E,20,88,0A,66,10,29,A9,88, 1700
2740 DATA 86,AA,5B,2A,AA,A2,A8,A8,A2,A0,00,28,A3,23,28,A8,B8,A8,AA,BA, 2581
2750 DATA A8,AA,FE,A8,AA,AA,A8,A8,00,A8,28,A8,A0,0A,AA,80,02,AA,00,00, 2452
2760 DATA A8,00,00,00,00,00,33,33,30,33,33,30,33,33,30,AA,AA,AA,AA,AA, 1466
2770 DATA AA,56,9A,9A,A6,66,66,A6,66,66,A6,66,66,9A,9A,66,9A,9A,66,9A, 2648
2780 DATA 66,66,6A,66,66,6A,66,66,56,9A,9A,AA,AA,AA,AA,AA,AA,33,33,30, 2388
2790 DATA 33,33,30,33,33,30,00,00,A8,00,00,A8,00,00,A8,00,02,AA,00,02, 978
2800 DATA 22,00,02,22,00,02,22,00,02,AA,00,00,A8,00,00,98,00,00,98,00, 750
2810 DATA 00,98,00,00,A8,00,00,A8,00,02,AA,00,02,22,00,0A,8A,80,0A,AA, 1152
2820 DATA 80,0A,AA,80,0A,AA,80,03,FF,00,00,00,55,00,05,55,40,0F,FF,F0, 1751
2830 DATA 05,55,40,02,AA,80,0A,8A,A0,2A,02,A8,2A,8A,A0,AA,AA,80,A6,AA, 2118
2840 DATA 00,9A,A8,00,9A,A0,00,9A,80,00,A6,A0,00,AA,A8,00,AA,AA,00,AA, 2092
2850 DATA AA,80,2A,AA,A0,2A,AA,A8,0A,AA,A0,02,AA,80,00,A2,22,A2,A2,22, 2244
2860 DATA A2,A2,22,A2,A2,22,A2,A2,22,A2,A2,22,A2,A2,22,A2,A2,22,A2,A2, 2472
2870 DATA 22,A2,A2,22,A2,A2,22,A2,A2,22,A2,A2,22,A2,A2,22,A2,A2,22,A2, 2344
2880 DATA A2,22,A2,00,00,00,CF,CF,CC,CC,CC,CC,CC,CC,CC,CF,CF,CC,FF,00, 3073
2890 DATA F0,00,03,FC,00,03,3C,00,03,FC,00,00,F0,00,00,A0,00,00,A0,00, 1373
2900 DATA 00,A0,00,02,A8,00,02,28,00,02,28,00,0A,2A,00,08,AA,3C,28,AA, 914
2910 DATA A8,22,AA,AA,22,AA,AA,2A,AA,AA,2A,02,AA,0A,AA,A8,05,55,54,05, 2039
2920 DATA 55,54,FF,06,C6,C0,0A,AA,A0,2A,AA,A8,38,28,2C,E8,28,2B,E8,28, 2267
2930 DATA 2B,E8,28,2B,E8,EB,2B,38,EB,2C,28,EB,28,2A,AA,A8,25,55,58,26, 2146
2940 DATA AA,98,0A,00,A0,0A,00,A0,0A,00,A0,2A,82,A8,2A,82,A8,25,82,58, 1767
```


Discmon

A Moulden

This week features the second part of the Discmon utility. The instructions continue.

If a single character is keyed in, *Discmon* will insert the Ascii value into the sector at that position. To enter non printable codes type in the two character hex code.

To increase or decrease the value of the current byte enter *+Hexno* or *–Hexno* (+DO for example). This will then add or subtract the inputted value from the current byte.

Discmon can perform logical operations on the byte at the cursor position. The logical operators supported are OR, AND, XOR, NOR, NAND, XNOR, NOT and NEG. Simply enter OR *x* for example, where *x* is a hex number or in binary. If binary it must be padded out with zeros to make it eight bits long.

The last part of *Discmon* is given next week.

```
1760IFMID$(A$,2,1)<>"."A$="$."+A$
1770A$=A$+STRING$(9-LENA$," ")
1780C%=0:F%=0:REPEAT
1790C%=C%+1:IFA$=FNupper(nm$(C%))F%=C%
1800IFCHR$(ASC(LEFT$(A$,1))+128)+RIGHT$
(A$,LENA$-1)=FNupper(nm$(C%))F%=C%
1810UNTILF%ORC%=NUM%
1820IFF%=0ENDPROC
1830AB%=st%(F%)
1840TR%=AB%DIV10:SC%=AB%MOD10
1850IFFNupdateyn:PROCsave
1860CLS:PROCloadsave(DR%,TR%,SC%,1)
1870VDU26:O%=0:E%=0:F%=0:flg%=0
1880PROCshow:ENDPROC
1890:
1900DEFFNdectrk
1910B%=LENB$:B$=RIGHT$(B$,B%-3)
1920B%=LENB$:B$=LEFT$(B$,B%-1)
1930FL%=0:FORP%=1TOLENB$
1940S$=MID$(B$,P%,1)
1950IFS$<"0"ORS$>"9"FL%=1
1960NEXT:IFFL%=1=-1
1970=VALB$
1980:
1990DEFPROCdrv:PRINT;
2000D%=ASCRIGHT$(A$,1)-48
2010IFD%<0ORD%>3ENDPROC
2020DR%=D%:$&A00="DRIVE "+STR$DR%
2030X%=0:Y%=10:CALL&FFF7
2040PROCloadsave(DR%,TR%,SC%,1)
2050PROCshow:ENDPROC
2060:
2070DEFPROClogaps(X$):A%=-2
2080B$=RIGHT$(A$,LENA$-LENX$)
2090IFLENB$=8A%=FNbin(B$):IFA%=-1ENDPRO
C
2100IFA%<>-2THEN2150
2110IFLENB$=1B$="0"+B$
2120IFLENB$<>2ENDPROC
2130IFFNvalidhex(B$,2)=0ENDPROC
2140A%=EVAL("&"+B$):PRINTA%
2150B%=mem%?O%:Z$=STR$B%+X$+STR$A%
2160IFX$="NAND"Z$="NOT ("+STR$B%+"AND"+
STR$A%+")"
2170IFX$="NOR"Z$="NOT ("+STR$B%+"OR"+ST
R$A%+")"
2180IFX$="ENOR"Z$="NOT ("+STR$B%+"EOR"+
STR$A%+")"
2190Z%=EVALZ$:IFZ%<0Z%=Z%+256
2200VDU26:PROCchange(Z%,O%)
2210editf=1:ENDPROC
2220:
2230DEFPROCnot:VDU26:editf=1
2240PROCchange(255-mem%?O%,O%):ENDPROC
2250:
2260DEFPROCneg:VDU26:editf=1
2270PROCchange(256-mem%?O%,O%):ENDPROC
2280:
2290DEFFNbin(B$):A%=0:fg=-1:FORP=1TO8
2300Y$=MID$(B$,P,1)
2310IFY$<>"0"ANDY$<>"1"fg=0
2320A%=A%+VALY$*2^(8-P)
2330NEXT:IFfg=0=-1ELSE=A%
2340:
2350DEFPROCdh
2360B$=RIGHT$(A$,LENA$-2):CLS
2370b%=VALB$:PRINT"Hex is ";
2380PRINT;~B%". Press space...";
2390REPEATUNTILGET=32:CLS:ENDPROC
2400:
2410DEFPROChd
```

continued on page 26▶

◀ continued from page 25

```
2420B$=RIGHT$(A$,LENA$-2)
2430B%=LENB$
2440IFFNvalidhex(B$,B%)=FALSE:ENDPROC
2450N$="&"+B$:B%=EVALN$
2460PRINTm$"Dec is ";B%;
2470PRINT"   Press space...";
2480REPEATUNTILGET=32:CLS:ENDPROC
2490:
2500DEFPROCadsub
2510IFLENA$>3ENDPROC
2520B$=LEFT$(A$,1):C$=RIGHT$(A$,LENA$-1
)
2530IFLENC$=1C$="0"+C$
2540IFFNvalidhex(C$,2)=0ENDPROC
2550B%=EVAL("&"+C$)
2560A%=mem%?0%:IFB$="+"A%=A%+B%
2570IFB$="-"ORB$="_"A%=A%-B%
2580IFA%<0A%=A%+256
2590IFA%>255A%=A%-256
2600editf=1:VDU26:PROCchange(A%,0%):END
PROC
2610:
2620DEFPROCset
2630IFC$="CHR"IFLENA$<>4ENDPROC
2640IFC$="CHR"A$=RIGHT$(A$,1):ch%=ASCA$
:VDU26:GOTO2690
2650A$=RIGHT$(A$,LENA$-3):IFLENA$=1A$="
0"+A$
2660IFLENA$<>2ENDPROC
2670IFFNvalidhex(A$,2)=0ENDPROC
2680VDU26:ch%=EVAL("&"+A$)
2690PRINTTAB(20,2);0;:IFch%<16PRINT;"ch
%ELSEVDU8:PRINT;"ch%
2700ENDPROC
2710:
2720DEFPROCchrin:VDU26:editf=1:PROCchan
ge(ch%,0%):ENDPROC
2730ENDPROC
2740:
2750DEFPROCnew:IFNOTFNsure:CLS:ENDPROC
2760CLS:RUN
2770:
2780DEFPROCinit:DR%=0:SC%=0:TR%=0
2790flg%=0:E%=0:F%=0:0%=0:DIML$(33)
2800w$=CHR$135:r$=CHR$129:g$=CHR$130
2810c$=CHR$134:m$=CHR$133:y$=CHR$131
2820ch%=0:*FX15
2830*FX4,1
2840*FX225,250
2850*FX219,31
2860DIMdb%10,mem%256:PROCass:CALLscrn
2870le$=CHR$129:ri$=CHR$134
2880PROCloadsave(DR%,0,1,1)
2890TRK%=((mem%?6 AND3)*256+mem%?7)/10
2900NUM%=mem%?5/8
2910DIMnm$(NUM%+1),st%(NUM%+1)
2920DIMen%(NUM%+1)
2930FORP%=1TONUM%
2940st%(P%)=?(mem%+7+8*P%)
2950Z%=?(mem%+6+8*P%)
2960IFZ%=2050RZ%=1st%(P%)=st%(P%)+256
2970ig%=?(mem%+5+8*P%)
2980en%(P%)=ig%+st%(P%)
2990NEXT
3000PROCloadsave(DR%,0,0,1)
3010FORP%=1TONUM%
3020nm$(P%)=CHR$?(mem%+7+8*P%)+"."
3030nm$(P%)=nm$(P%)+FNmem(mem%+8*P%,7)
3040NEXT
3050PROCscr:PROCshow:editf=0:*FX15
3060ENDPROC
3070:
3080DEFFNin(L):LOCALS$
3090C=0:O=65:S$="":*FX15
3100REPEAT
3110VDU26:PRINTTAB(5,0);:A%=mem%?0%
3120IFA%>31ANDA%<127VDUA%ELSEVDU255
3130PRINTTAB(5,1)"000";:A$=STR$A%
3140PRINTTAB(8-LENA$,1)A$
3150CALLbin
3160PRINTTAB(29,3)SPCBTAB(29+E%,3)"*"
3170CALLstar:PRINTTAB(37,F%+5)"*"
3180VDU28,0,23,39,22:O$=STR$~O%
3190IFLENO$=1:O$="0"+O$
3200PRINTTAB(0,0)g$"Pos:"LEFT$(O$,1);
3210PRINTRIGHT$(O$,1)" >>";:VDU26
3220PRINTTAB(E%*3+3,F%+5)le$
3230PRINTTAB(E%*3+6,F%+5)ri$
3240PRINTTAB(11+C,22);
3250G=GET:IFC=L:GOTO3500
3260IFINKEY-1 SH=1ELSESH=0
3270IFINKEY-2CT=1ELSECT=0
3280IFG=19PROCcase:GOTO3110
3290IFG>135ANDCT=1:G=G+4
3300IFG>139ANDG<144ANDCT=1ANDSH=1:flg%=
0:O%=0:E%=0:F%=0:G=G-4:PROCmove(5):GOTO3
110
3310IFG>139ANDG<144:flg%=0:O%=0:E%=0:F%
=0:G=G-4:PROCmove(1):GOTO3110
3320IFG=31ANDflg%=0:flg%=1:O%=O%+128:PR
OCprint(1):GOTO3110
3330IFG=31ANDflg%=1:flg%=0:O%=O%-128:PR
OCprint(0):GOTO3110
3340IFG=251PROCcase:GOTO3110
3350IFG=252PROCchrin:GOTO3110
3360IFG=135ORG=9PROCinst:VDU26:PROCprin
t(flg%):VDU28,0,23,39,22:GOTO3110
3370IFG=250PROCinfo:VDU26:PROCprint(flg
%):VDU28,0,23,39,22:GOTO3110
3380IFG=136ANDSH=1PROCwipe:O%=O%-E%:E%=
0:GOTO3110
3390IFG=136ANDE%<>0PROCwipe:E%=E%-1:O%=
O%-1:GOTO3110
3400IFG=136ANDE%=0ANDF%<>0PROCwipe:E%=7
:F%=F%-1:O%=O%-1:GOTO3110
3410IFG=137ANDSH=1PROCwipe:O%=O%+7-E%:E
%=7:GOTO3110
3420IFG=137ANDE%<>7PROCwipe:E%=E%+1:O%=
O%+1:GOTO3110
3430IFG=137ANDE%=7ANDF%<>15PROCwipe:E%=
0:F%=F%+1:O%=O%+1:GOTO3110
3440IFG=138ANDSH=1PROCwipe:O%=O%+8*(15-
F%):F%=15:GOTO3110
3450IFG=138ANDF%<>15PROCwipe:F%=F%+1:O%
=O%+8:GOTO3110
3460IFG=139ANDSH=1PROCwipe:O%=O%-8*F%:F
%=0:GOTO3110
3470IFG=139ANDF%<>0PROCwipe:F%=F%-1:O%=
O%-8:GOTO3110
3480IFG>135ANDG<140GOTO3250
3490IFG>31ANDG<127VDUG:C=C+1:L$(C)=CHR$
G
3500IFC ANDG=127VDU127:L$(C)="":C=C-1
3510G=G:UNTILG=13ANDC<>0
3520VDU13,10:FORP=1TOC:S$=S$+L$(P)
3530NEXT:=S$
3540:
3550DEFPROCsaveyn
3560IFFNsure:PROCsave
3570CLS:ENDPROC
3580:
3590DEFPROCsave
3600PROCloadsave(DR%,TR%,SC%,0)
3610ENDPROC
3620:
3630DEFPROCstar:A$=RIGHT$(NS$,LENNS$-1)
:VDU26,12
3640OSCLIA$:PRINT'"Press a key...";:G=G
ET
3650IFG=ASC"*"PRINT'"*";:INPUT""A$:GOTO
3640
3660CALLscrn:PROCscr:PROCshow:ENDPROC
3670:
3680DEFPROCass:DIMmc%&250
3690FOROpt=0TO2STEP2
3700P%=mc%:[OPTopt:.scrn LDA#22:JSR&FFE
3:LDA#7
3710JSR&FFE3:LDA#23:JSR&FFE3:LDA#1:JSR&
FFE3:LDA#0:]
3720FORa=1TO8:[OPTopt:JSR&FFE3:]NEXT:[O
PTopt:RTS
3730.disc LDA&80
3740STAdb%:LDA#mem%MOD256
3750STAdb%+1:LDA#mem% DIV256:STAdb%+2
3760LDA#0:STAdb%+3:STAdb%+4:LDA#3:STAdb
%+5
3770LDA&83:STAdb%+6:LDA&81:STAdb%+7:LDA
&82:STAdb%+8:LDA#&21:STAdb%+9
3780LDX #db% MOD256:LDY #db% DIV256:LDA
#&7F:JSR&FFF1:RTS
3790.print LDA#31:JSR&FFE3:LDA#0:JSR&FF
E3:LDA#5:JSR&FFE3:LDX&70:.vloop LDA#129
3800JSR&FFE3:TXA
3810JSR printhex:INX:INX:INX:INX:INX:IN
X:INX:INX
3820LDA#10:JSR&FFE3:LDA#8:JSR&FFE3
3830JSR&FFE3:JSR&FFE3:TXA
3840AND#&7F:BNEvloop
3850LDX&70:LDA#31:JSR&FFE3:LDA #3:JSR&F
FE3:LDA#5:JSR&FFE3
3860.outerloop LDY #0
3870.innerloop LDA #134:JSR&FFE3:TXA:PH
A:STY&80:CLC
3880ADC &80:TAX:LDA mem%,X:JSR printhex
:PLA:TAX:INY:CPY#8
3890BNE innerloop:LDA #130
3900JSR&FFE3:JSR&FFE3
3910LDY #0:.inner2 TXA:PHA
3920STY&80:CLC:ADC &80
3930TAX:LDA mem%,X:CMP#32:BCC printspac
e:CMP#127
3940BCS printspace:.back JSR &FFE3
3950INY:PLA:TAX:CPY#8
3960BNE inner2:INX:INX:INX:INX:INX:INX:
INX:INX
```

Sound Sampler

R Wooberry

This program incorporates two routines for sampling and replaying sound through the Spectrums internal speaker or, if you have a 128K machine, through the television speaker.

The program is very user friendly and issues prompts for all inputs. To use the sampler enter (in 48K Basic) and run the listing. Then, try 200 for the length of the sample (in 50ths of a second), 35000 for the address of the sample and 4000 for the address of the input/output programs.

When you are informed of a return to Basic connect the sound source (radio, cassette etc) to the ear socket and enter the appropriate RANDOMIZE USR statement.

After sampling, enter the other RANDOMIZE statement to hear the sound through the relevant speaker.

```
  5 REM Sound Sampler
 By R.J.Wooberry                Co The
Village
  10 BORDER 0: PAPER 7: CLS : INK 0: PRI
NT AT 0,10;"Sound Sampler";AT 1,9;"____
_____"
  20 PRINT AT 3,1;"Enter time of sample
in 50th's";AT 4,10;"of a second.";AT 5,3
;"(1/50th requires 64 bytes)"
  30 INPUT a: LET a=INT a: IF a<1 OR a>5
12 THEN  GO TO 30
  40 PRINT AT 8,2;"Enter address for sto
rage of";AT 9,10;"sample code.";AT 10,2;
"(";a*64;" byte space required)"
  50 INPUT s: LET d=a*64+s: LET e=INT (d
/256): IF e*256<>d THEN  LET e=INT (e)+1
  60 IF s<32768 OR e>254 THEN  GO TO 40
  70 PRINT AT 12,3;"Start=";s;AT 12,19;"
End=";e*256-1;AT 15,2;"Enter start addre
ss for I/O";AT 16,11;"programs.";AT 17,3
;"(199 byte space required)"
  80 INPUT p: IF p>=s-199 AND p<e*256 AN
D p<>23296 OR p>65325 OR p<32768 AND p<>
23296 THEN  GO TO 80
  90 PRINT AT 19,1;"INPUT - Start=";p;"
End=";p+92;AT 20,1;"OUTPUT- Start=";p+93
;" End=";p+198;#1; FLASH 1;" Press  Any
 Key  To  Continue. ": PAUSE 0
 100 CLS : PRINT AT 0,10;"Sound Sampler"
;AT 1,9;"_____": PRINT AT 4,4;
"Type RANDOMIZE USR ";p;AT 5,7;"to input
 a sample.";AT 8,4;"Type RANDOMIZE USR "
;p+93;AT 9,6;"to replay the sample."
 110 LET t=0: FOR i=p TO p+198: READ a:
LET t=t+a: POKE i,a: NEXT i: IF t<>21298
 THEN  PRINT AT 13,2; FLASH 1;" E R R O
R  I N  D A T A  ! ": STOP
 120 LET a=INT ((p+43)/256): LET b=(p+43
)-a*256: POKE p+18,b: POKE p+19,a: LET a
=INT (s/256): LET b=s-a*256: POKE p+24,b
: POKE p+25,a: POKE p+32,e
 130 LET a=INT ((p+153)/256): LET b=(p+1
53)-a*256: POKE p+111,b: POKE p+112,a: L
ET a=INT (s/256): LET b=s-a*256: POKE p+
117,b: POKE p+118,a: POKE p+142,e
 140 PRINT AT 13,1;"You are now returned
 to BASIC."
 200 DATA 243,237,94,62,24,50,255,255,62
,57,237,71,62,195,50,244,255,33,0,0,34,2
45
 210 DATA 255,33,0,0,14,64,251,118,124,2
54,0,32,249,62,63,237,71,237,70,251,201,
243
 220 DATA 6,64,229,104,6,8,22,0,30,3,219
,254,129,56,1,29,219,254,129,56,1,29
 230 DATA 29,32,1,20,203,10,0,0,0,0,0,0,
16,228,69,225,114,35,0,0,0,0,0,0,16,210,
201,243,237
 240 DATA 94,62,24,50,255,255,62,57,237,
71,62,195,50,244,255,33,0,0,34,245,255,3
3
 250 DATA 0,0,14,254,58,72,92,15,15,15,2
30,7,198,16,87,122,214,16,8,62,64,251
 260 DATA 118,124,254,0,32,243,62,63,237
,71,237,70,251,201,243,8,94,6,8,203,11,4
8
 270 DATA 25,237,81,211,254,237,81,211,2
54,237,81,211,254,237,81,211,254,16,234,
35,8,61
 280 DATA 32,225,8,201,62,4,61,32,253,12
2,214,16,0,0,24,235
```


Sharks

J W Haworth

Sharks is a machine code interpretation of A K Dewdney's sharks and fish simulation described in the December 1984 issue of *Scientific American*.

To see the program in action have the QL in mode 4 and enter Lrun mdv1_wator. Then enter *Call a, d1, d2, d3, d4, d5, d6.*

Where *d1* is the initial number of fish (1–2048), *d2* is the initial number of sharks (1–2048), *d3* is the number of cycles that elapses before a fish breeds (1–63, but 1–5 is sensible), *d4* is the energy level a shark needs to breed (1 to 15), *d5* is the energy a shark gains from eating a fish (1–5), *d6* is the random number seed (and can be omitted).

Pressing the *Escape* key returns to *Superbasic.*

```
1 RESTORE 100
2 r=RESPR(4096)
3 b=r+2048
4 a=b+146
5 REPeat loop:READ d:POKE b,d:b=b+1:IF EOF THEN
EXIT loop:END REPeat loop:STOP
100 DATA 255,0,255,0,255,0,255,0,255,0
110 DATA 255,0,255,0,255,0,255,0,255,0
120 DATA 253,0,249,0,195,0,231,0,255,0
130 DATA 255,0,255,1,255,1,255,3,255,3
140 DATA 255,6,255,254,255,124,255,48,204,252
150 DATA 0,149,6,70,6,5,2,70,7,255
160 DATA 78,117,212,252,0,64,12,70,7,192
170 DATA 101,4,148,252,8,0,78,117,83,138
180 DATA 229,78,74,6,102,4,212,252,0,64
190 DATA 228,78,78,117,148,252,0,64,12,70
200 DATA 0,64,100,4,212,252,8,0,78,117
210 DATA 82,138,229,78,12,6,0,252,102,4
220 DATA 148,252,0,64,228,78,78,117,2,66
230 DATA 0,48,36,73,78,187,32,182,6,66
240 DATA 0,16,74,18,78,117,65,250,255,108
250 DATA 48,60,1,255,66,160,81,200,255,252
260 DATA 6,3,0,128,16,3,83,65,101,14
270 DATA 97,0,255,132,17,128,96,0,83,0
280 DATA 106,238,96,238,16,4,83,66,101,24
290 DATA 97,0,255,112,17,188,0,48,96,0
300 DATA 205,48,96,0,209,48,96,0,83,0
310 DATA 103,228,96,228,65,250,255,40,34,124
320 DATA 0,2,0,0,116,31,114,63,69,250
330 DATA 255,26,8,160,0,6,74,16,103,10
340 DATA 107,4,212,252,0,16,212,252,0,16
350 DATA 112,7,50,154,210,252,0,128,81,200
360 DATA 255,248,146,252,3,254,81,201,255,216
370 DATA 210,252,3,128,81,202,255,206,48,60
380 DATA 7,255,97,0,255,20,67,240,96,0
390 DATA 189,66,8,17,0,6,102,114,74,17
400 DATA 103,110,106,32,114,3,97,0,255,76
410 DATA 87,201,255,250,102,96,82,17,20,145
420 DATA 66,17,182,18,98,82,8,209,0,7
430 DATA 20,188,0,129,96,72,126,48,206,17
440 DATA 159,17,114,3,97,0,255,38,91,201
450 DATA 255,250,106,26,20,145,219,18,66,17
460 DATA 184,18,98,12,226,92,20,132,226,92
470 DATA 18,132,229,92,213,17,223,18,96,28
480 DATA 83,17,98,4,66,17,96,24,114,3
490 DATA 20,7,223,17,97,0,254,244,87,201
500 DATA 255,250,102,8,20,145,66,17,8,210
510 DATA 0,6,81,200,255,124,225,94,220,80
520 DATA 220,81,20,5,112,17,71,250,0,18
530 DATA 78,65,26,2,12,1,0,8,102,0
540 DATA 255,30,112,0,78,117,9,1,0,0
550 DATA 0,0,1,2
```

Clover

R A Hewett

With this QL subroutine you can draw a four leaf clover which can be incorporated into your own programs for drawing scenery. The equation in line 125 can also be used to calculate something like a missiles trajectory.

```
90 DEFine PROCedure clover
100 SCALE 8,-5,-4
120 FOR n=1.33 TO -4 STEP -7E-3
125 t=SQRT(n^2*((4+n)/(3-n)))
131 POINT t,n:POINT n,t
132 POINT n,-t:POINT -t,n
133 POINT -n,t:POINT t,-n
134 POINT -t,-n:POINT -n,-t
140 NEXT n
150 END DEFine
```

Compressor

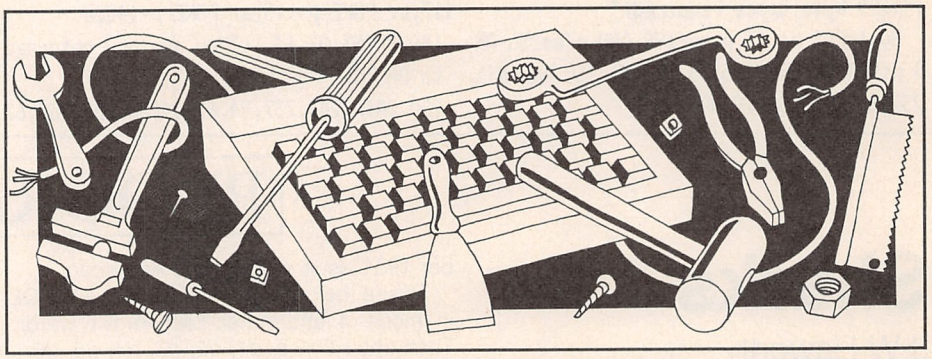
Amrit Mann

Compress your programs with this 48K Spectrum routine, by up to 25%. The routine works by inserting VAL statements around all the numbers found in a listing. Once compressed the number of bytes saved will be printed on the screen.

```
@  1 REM TO  SAVE TYPE "save val"CODE 65
000,125
   2 CLEAR 64999
  10 LET tot=0: FOR a=65000 TO 65124: RE
AD x: LET tot=(tot+x): POKE a,x: NEXT a:
 IF tot<>13753 THEN  PRINT "Error in dat
a statements        Recheck code.": BEEP
 .5,-15
  20 PRINT "PRINT USR 65000 FOR DEMO THE
N DO A LIST "
 100 DATA 33,0,0,34,103,254,34,73,92,229
,33,73,92,205,15,25,42
 110 DATA 73,92,205,110,25,35,35,78,35,7
 120 DATA 36,254,225,237,75,101,254,112,
43,113,42,73,92,193,120
 130 DATA 188,32,214,121,189,32,210,237,
75,103,254,201,35,126
 140 DATA 211,254,254,13,200,254,14,32,2
45,1,5,0,205,232,25,54
 150 DATA 34,229,43,126,205,27,45,48,249
,254,46,40,245,1,2,0
 160 DATA 205,85,22,35,35,54,176,35,54,3
4,42,101,254,43,43,43,34
 170 DATA 101,254,42,103,254,35,35,35,34
,103,254,225,24,191
```

Autoload

Andrew Oakley

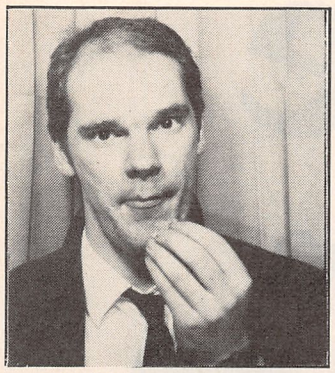


This Commodore 64 routine allows you to automatically load a program and run it. Once the program has been run simply enter the name of the file you wish to autoload, and then the autoload file. So, for example, entering MENU and BOOT would result in BOOT loading and running MENU.

Once an autoload file has been set up simple enter LOAD "autoload name",8,1 to use it.

```
5 REM *DISK AUTOLOAD BY ANDREW OAKLEY*
10 INPUT"FILE TO BE AUTOLOADED";F$:INPUT"AUTOLOAD NAME";N$:X=679
20 READZ:IFZ>-1ANDZ<256THENPOKEX,Z:X=X+1:GOTO20
30 DATA162,0,189,194,2,32,210,255,232,224,-1:POKE689,LEN(F$)+14:X=690
40 READZ:IFZ>-1ANDZ<256THENPOKEX,Z:X=X+1:GOTO40
50 DATA208,245,169,131,141,119,2,169,1,133,198,224,10,240,248,96,147,13,13,76
60 DATA79,65,68,34,-1:FORX=1TOLEN(F$):POKE713+X,ASC(MID$(F$,X,1)):NEXTX:X=713+X
70 READZ:IFZ>-1ANDZ<256THENPOKEX,Z:X=X+1:GOTO70
80 DATA34,44,56,44,49,19,-1:X=631
90 READZ:IFZ>-1ANDZ<256THENPOKEX,Z:X=X+1:GOTO90
100 DATA83,89,83,54,55,57,13,-1:POKE198,7:POKE251,198:POKE252,0:X=49152
110 READZ:IFZ>-1ANDZ<256THENPOKEX,Z:X=X+1:GOTO110
120 DATA169,1,162,8,160,255,32,186,255,169,-1
130 POKE49162,LEN(N$):X=49163
140 READZ:IFZ>-1ANDZ<256THENPOKEX,Z:X=X+1:GOTO140
150 DATA162,28,160,192,32,189,255,169,251,162,213,160,2,32,216,255,96,-1
160 FORX=1TOLEN(N$):POKE49179+X,ASC(MID$(N$,X,1)):NEXTX:SYS49152:POKE198,0

READY.
```



with Kenn Garroch

Completely baffled

Jim McLaughlin, of Carfin, Motherwell, writes:

Q I'm trying to learn machine code, without much success; I have an Amstrad CPC 464 (no disc drive) and plenty of spare time, and blank tapes.

I bought *Amstrad Machine Language for the Complete Beginner* by Joe Pritchard, and also *Amstrad CPC464 Whole Memory Guide.* I've read the first one and learned nothing. The second one had me completely baffled.

What's the big secret? I understand Basic to a certain level.

I also own the ADAM Ass/Dis/Mon and would like to ask you something about this.

Suppose I load the ADAM at Hex 4000, then go to Basic and write a small program. After entering it, I go back to ADAM and disassemble from 368 decimal. When I try to assemble the result I get all sorts of errors. What am I doing wrong?

I would like to write a Basic program to allow Morse code to be played on the cassette, and then decoded on to the screen. Is this possible with the CPC464, and if not, which machine is it possible on?
(Letter edited for length)

A It seems that there is a little misunderstanding here. There is quite a difference between machine code and Basic. Basic is a 'high level' language, that is, it consists of sections of machine code linked together. The links are made by a program called an interpreter. This is in the Amstrad's Rom and takes the Basic program you have typed in, and converts each command into a chunk of machine code, eg, it sees the PRINT command and runs the appropriate code for PRINT.

When a Basic program is entered in, it is held either as the text you typed in, or an encoded form of the text (*not* machine code) to save memory. In the coded format, the start of a Basic program will be denoted by, say, two zeros.

When you type RUN, the interpreter starts at the two zeros and says, OK, here we have the start of a Basic program. It then looks at the next piece of information and checks to see if it is a valid command code, say, 21 for REM (note that these numbers are not the real ones, they are examples used purely for this description).

It then goes to the Rom and finds the machine code routines for REM and does whatever is necessary. The upshot is that a Basic program is a set of instructions for an interpreter to run the program from. The interpreter itself is written in machine code.

Machine code consists of a series of numbers that the microprocessor understands as instructions. When you switch the Amstrad on, it always jumps to the same position in its memory, and looks at the number there.

This is always an instruction code that tells the processor to do something. It may be that the instruction tells the processor to load the next value in memory, into the accumulator (Have another look at the text book for a description of what this is and does). In this way, instructions and information can be intermingled in the same memory area. The instructions come first, and tell the microprocessor what to do with any information that follows.

To write programs in machine code, you need an assembler, and a list of what instructions are available for the processor – in this case, the Z80. These instructions can be strung together to form a program. Telling the processor to go to the start of them runs the program. For example, with the editor/assembler, enter:

```
;Semi colons are used to start off a
;comment line - similar to REM. You
;needn't include them in the program.
;The microprocessor doesn't need them,
;but you might, to help understand what
;is going on.
ENT  2000        ;This is the start of the
                  program 2000
LD   A,255       ;Put 255 in A
LD   HL,49152    ;Put 49152 in HL
LD   (HL),A      ;Store A at the ad-
                  dress in HL, ie, 49152
RET              ;Finished so return to
                  main program (editor
                  ;assembler most
                  likely, or Basic)
```

The only instruction in this program that the microprocessor will not understand is ENT 2000. This is a command to the assembler program to tell it that when it converts the commands into the instruction numbers (technically Op codes), the numbers should be stored starting from memory location 2000.

Assembler

You will have to look in the instruction manual for the assembler to find an equivalent command, ie, one that tells the assembler where to put the code (try the index ORG or FNT or even * or $). When the above program has been typed in, you will have to tell the assembler to assemble it.

The assembler is a program that takes the text of the program, and converts it into a form that the processor can directly understand. Once it is assembled, it can be run (usually GO or G — index under run, start, execute, etc).

The program simply loads the value 255 into the A register or accumulator of the Z80. Then loads the numbr 49152 into the HL register pair. The next instruction tells the processor to store the accumulator at the address given in HL, ie, 49152 which is in the screen memory. You should see a small bar of one character width appear on the screen somewhere.

So, to write a machine code program, you have to enter the mnemonics (LD, RET, CMP, JMP, etc, are mnemonics – simple words to help remember what the commands do) as text. Then assemble the text, save it, and then run it to see if it works.

The books you have should now, hopefully, make a little more sense. The first one should basically be saying what I have said only in a lot more detail. The second one documents all of the machine routines that are built into the Rom, plus all of the system variables (numbers and locations that the computer needs to keep itself up to date plus built-in subroutines to print things on the screen, etc). You might also try *Z80 Assembly Language Programming* by Lance Leventhal from McGraw Hill.

It may appear to be a little advanced but it does contain good descriptions of all the Z80 machine code instructions and what they do. Once you get the hang of it, it will come in very handy.

Your second question about reading morse code signals from tape is difficult to answer. It is true that the cassette works on a FSK (Frequency Shift Keying) or FM (Frequency modulation) system. The trouble is that the frequencies used for morse are almost certainly incompatible with the hardware normally used to read programs from tapes.

If it is to work, you will need a machine code program that reads the cassette directly (see the second book you have). You will have to look for ons and offs, and measure their lengths. It should then be possible to convert this to text.

Basic is not really fast enough to do this (not for a good Morse hand anyway). One of the advantages of machine code over Basic is that since there is no interpreter in between the program and what the computer is actually doing, things go an awful lot faster (usually 100 times approx). This is because machine code instructions are performed directly by the microprocessor.

If you cannot get the Amstrad to understand machine code, then you will need an extra piece of hardware attached to the back, say a frequency to voltage converter and a schmitt trigger or op-amp to rectify the signal.

This will easily convert the morse into ons and offs which can be timed, allowing them to be understood. After playing around with machine code for a whiel, you will get the idea about how to inferface things to the Amstrad, and be able to write the programs you want.

Is there anything about your computer you don't understand, and which everyone else seems to take for granted? Whatever your problem *Peek* it to Kenn Garroch and every week he will *Poke* back as many answers as he can. The address is *Peek & Poke, PCW*, 12-13 Little Newport Street, London WC2H 7PP.

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Not just for the 64

Graham Edkins reports that Compunet is not all inward-looking; it carries Amiga news and Psion organiser facilities too.

With Compunet currently being accessible only to Commodore owners, not using the network may be surprised to learn that the computer chat and info areas are not solely related to that one micro.

A recent debate in the Arena area was about the relative advantages of the Amiga and the Atari ST, and the opinions expressed were as wide as one would expect from any open forum and did not show any sign of undue bias toward Commodore. If you GOTO 242774 you will find that this debate has now moved on to a discussion about Acorns new RISC micro, the Archimedes, offering both technical detail and personal opinion.

The Amiga (left) and Psion Organiser (right): both have their niches on Compunet

Compunet's Amiga area (GOTO AMIGA) has been steadily growing as that micro has become more widely used. The Amiga User Group (GOTO AUG) edited by Tony Lacey includes a Problems Page, information on its BBS and details of the public domain software that it holds. This PD library has over 50 discs available (Fish 1–51). A list of the programs held on each is given with details of how to order them for £3.00 each via Compunet's e-mail system.

In the Amiga area you will also find Learning to Prog, which has information on books that are available, Amiga Buddies, which gives users an area to upload their name and e-mail address so that they can be contacted by other users, and Amiga Games Tips.

The Independent Commodore User Group (ICPUG) is a major source of information on Compunet. Its Amiga area, Amiga Forum, contains information covering Printers and Basic, Amiga Basic tips, 64 data transfer (from its newsletter) and a directory with problems and answers sent to BF6 who runs the area. The Amiga Forum is outside ICPUG's Closed User Group and can be accessed by all users.

Owners of the Psion Organiser pocket computer area also well served with information and even downloadable programs. In FD1's area (GOTO PSION), he gives details of how to use the Psion RS232 link in conjunction with a RS232 adapter for the 64. Using this method, programs for the Psion can be downloaded by the 64 as a sequential file and then transferred via *Easy Script*.

There are a couple of directories of these programs in the area and also a complete database of radio stations all of which can be downloaded with no charge. If you don't have the necessary hardware link then the sequential file can be typed into your Psion by hand.

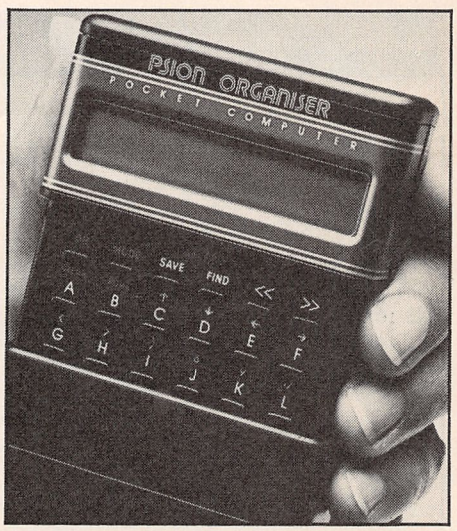
Within the excellent Electric Frog Plate area there is another Psion area (GOTO FPSION). Here there are reviews and information under the titles Psion Hardware, Programming, OPL, Spell Checker and Organiser Comms. If you don't yet own a Psion Organiser, this area may well persuade you to buy one as soon as possible.

These areas dedicated to non-64 computing matters are just the beginning of the wider information base that will come about when other micros come online. I understand that Compunet will announce two new machines to gain access at the forthcoming *PCW* show with a running demo of them.

The latest speculation includes the Amiga amongst them with even the Archimedes at a latter date. We might well see Compunet take full advantage of the advance features available on new micros by breaking away from the familiar 'duckshot' and providing windows, etc.

For those with their interests firmly based around the 64 there is as always plenty to see and download with no end in sight to the astonishing variety of things people want to say and do on the system.

In the People Link directory (GOTO PEOPLE) there is now a very wide range of interests, these include Photonet, Airnet for those interested in Planes, Icthus, Pets Paradise offering help with domestic animals, Coarse Fishing listing places to fish, etc, and Motor bikes. Other vehicles are handled in great details by MWB1 in his Road Transport area (GOTO ROAD).



MWB1's other area, called the Blue Flush, is in the next directory (GOTO FLUSH). It is an amusing and somewhat risque magazine. In JJW1's area (GOTO METNET) there is now just about everything that you might want to know about the weather, from a weekly weather forecast to barograph, weather systems and atmosphere information.

On the free program front there are now three program crunchers, the latest has been uploaded by LH5 on page 300363 the others can be found from page 155751.

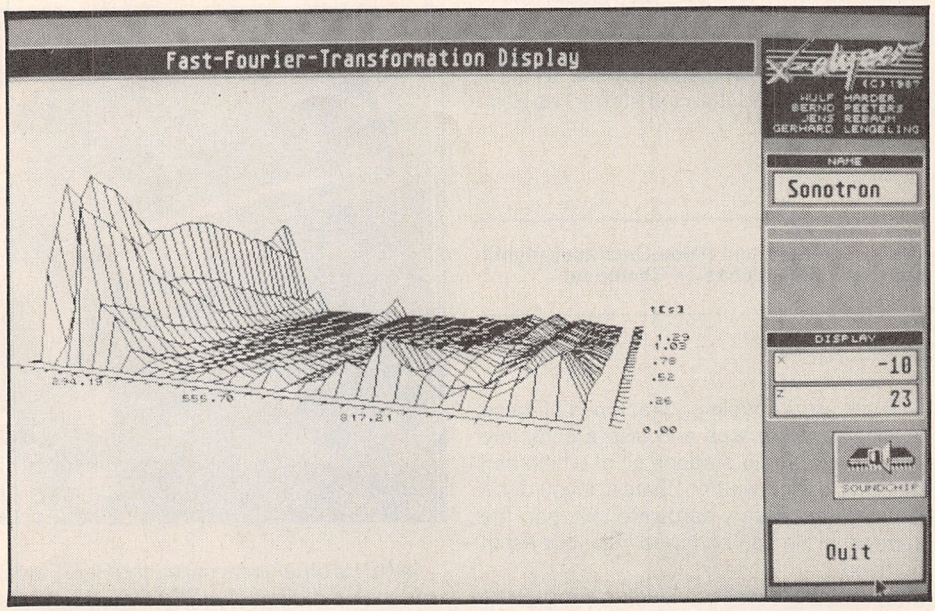
You can at any time show your opinion of any of these uploads or areas by voting against the appropriate page for everyone to see, and with the new mainframe in place this is now a very much faster procedure. Other effects brought about by the move can be seen in the chat area called Party Line (GOTO PARTY) where anything typed at the user's end appears in the chat area instantly making the natural flow of chat just what it should be. The overnight house keeping run is now very much quicker which leaves the system available off-peak for longer periods.

Music on display

Mark Jenkins reports from the British Music Fair held at London's Olympia recently.

The third British Music Fair to be held at the London Olympia site proved pretty good for micro music, although it must be said that many smaller companies either lacking the qualifications for Association of Music Industries membership or the hard cash for a stand were not represented.

Thus we did not see XRI or Joreth (both of whom managed to take part in the computer music special feature last year) and Iconix was only there in the sense that Chris Palmer of Tigress Marketing was wandering around the show on a couple of days drumming up interest.



C-Lab *X-Alyser* for the ST

Of the computer hardware companies, Cheetah had the largest stand – and it has gone largely into non-micro-related musical instruments this year! Syndromic dominated on the software front, while Sound Technology showed its new *Creator* Midi composer for the Atari ST and Roland showed its educational software for the PC.

In micro terms the show was inevitably ST dominated. Sonus showed some Commodore 64 products at the show, and Cheetah mentioned their Spectrum and Amstrad based samplers and drum programs while allowing them to take second place to other new products.

Assuming you've already chosen your music micro – whether it's an ST or a Commodore or a BBC – there was a profusion of Midi-based instruments suitable for plugging in and you've exhausted the possibilities of the built-in sound chip. In the alphabetical listing below I've allowed hardware and software manufacturers to intermingle in a manner which should give you some of the flavour of this packed and rather hectic fair.

Akai is currently helping sax and trumpet players to program micro packages and control Midi instruments using its EWI and EVI wind controllers, which come with a rack-mounted synth but which are even more effective when playing a sampler.

Casio featured its FZ-1 sampling synth which is now in the music shops, plus Midi digital pianos, plus a whole new range of Midi guitars which will let you control micros or play Midi synths. The DG20 has plastic strings so can't offer a particularly conventional feel, but built-in speakers and drum machine make it ideal for adding guitar phrasing to micro compositions – and for busking! There are also two professional Midi guitar controllers, the stylish MG500 and Strat-like MG510 models.

Cheetah de-emphasised its existing micro gear in favour of the ideal Midi controllers – the MK5 MkII five-octave keyboard, the MkIIV which adds velocity sensitivity, and a luxurious seven-octave version with pressure response which will sell for a mere £480. A £280 six-voice multitimbral DCO synth module and a £180 digital drum machine follow, the latter being programmable from a Spectrum.

Elka now has a superb range of digital FM synths and modules, an 18-note dynamic Midi pedalboard, drum machines, and a powerful 88-note Midi mother keyboard.

Ensoniq showed the DSK-1 (the stereo Mirage) plus the Mirage module, ESQ synth and module, and sampled piano plus module, but promise a more innovative release for later in the year.

Korg UK had the most useful introduction for micro-based drum fans. The DSM-1 is a percussion sound module with sequencer, trigger-to-Midi conversion from tape signals and pads, 16 "kit" memories, remote control and compatibility with existing DDD-1 and DDD-5 sound memory cards.

MTR showed its usual superb value range of mixers, power amps, studio accessories, and speakers for the home studio.

Roland's professional D50 synth and D550 module version were overshadowed in the eyes of micro users by the multi-timbra MT-32 demo'd with their Contemporary Keyboard (electronic piano) range. With a stripped-down version of the new LA synthesis system, 28 onboard PCM sampled percussion sounds and built-in reverb for 450 it's a real phenomenon.

Sound Technology showed C-Lab's *Creator* package for the ST which we reviewed a couple of weeks ago. It's been updated since then with improved editing possibilities, and will soon be joined by *X-Alyser,* the editor package which can set up your DX synth's operators to imitate sample data dumped in via Midi.

Steinberg is now marketing Pro-24 Version 2.1 which has increased editing facilities and full music score function but which will now only work on a 1040 ST rather than a 520. The *Soundworks* editor for the Akai S900 Sampler is also being regularly updated, as is the company's DX editor package.

Syndromic was showing Hybrid Arts *SMPTETrack* plus *EZTrack* and *EZScore,* its upcoming music scoring package, and its *DX* and *CZ Android* editors. Also on show were the *FB01, TX81Z* and *Alpha Juno* editors from Soundbits, a pre-release Roland *D50* editor with a wonderful scrolling page effect, and much more.

Yamaha showed the REX50 budget reverb with distortion programs for guitarists, and the current DX7MkIID/FD and TX81Z synths plus a new DX7MkIIS (which lacks their split and layer capabilities) and the TX802, a rack-mounting IID with multitimbral capability.

Like Akai, Yamaha had a wind controller which will let sax players program micros or Midi synths, and there were lots of multikeyboards, and portables on show including a nice shoulder-worn Midi with drums and auto accompaniment.

Back to the detailed reviews next week with Commodore news from Sonus, ST products from Softwares, some interesting readers' packages and news from the US.

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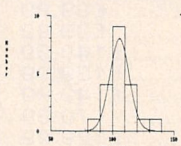

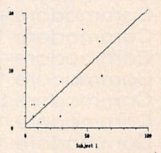

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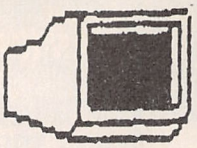

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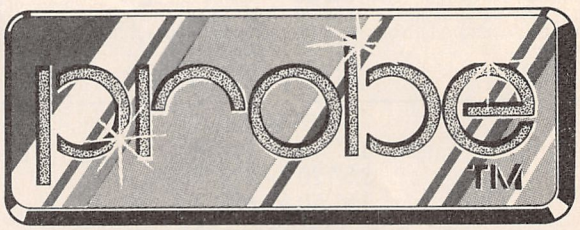

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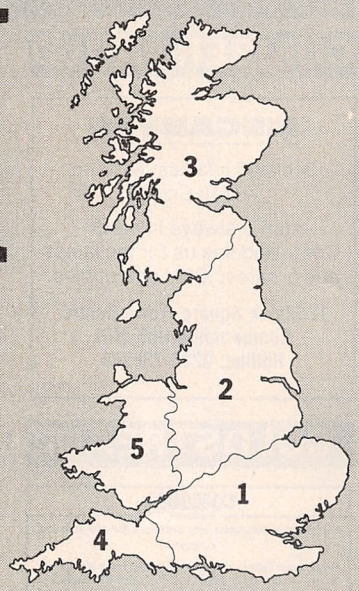

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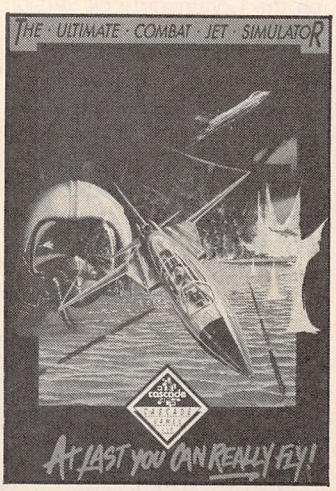

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Sort of like *Pole Position*, but with bikes instead of cars. Speed demons will probably enjoy it, but the disappointing scenery (there isn't any) and odd viewpoint leave it short of greatness.

Program *Spy vs Spy* **Type** Two player arcade **Price** £9.95 tape, £12.95 BBC/Master disc **Supplier** Tynesoft, Unit 3, Addison Industrial Estate, Blaydon, Tyne and Wear NE21 4TE.

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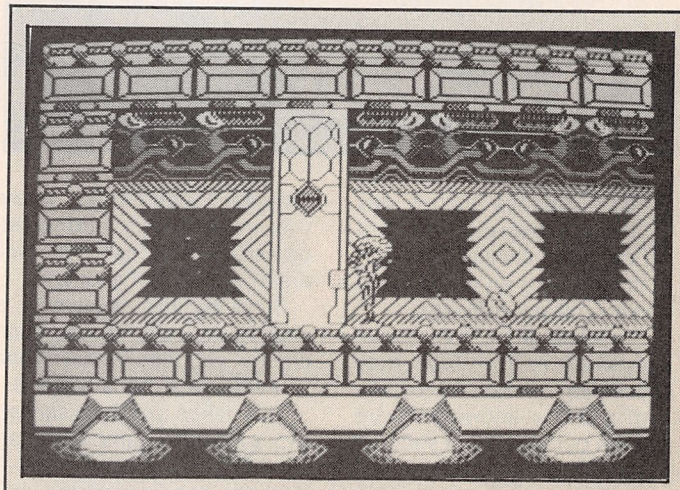


The title of this game might as well be Alien – The Arcade Game, though I imagine somebody, somewhere might have objected to that.

There's a mild element of originality in the plot, in that instead of being the lone fighter against hordes of monsters, in *Survivor* it is you who are the monster. Your task in the game is to ensure the survival of your race by locating ten incubation chambers onboard a space ship, and then leaving pods in them, out of which the next generation of little monsters will spring.

The ship is quite large, consisting of some 140 rooms, divided into four zones which are interconnected by lifts and groups of platforms, and you find your way around by the usual left/right, jump/duck method.

Wandering the corridors of the ship are lots of little humanoid engineers and contact with these will drain your creature's energy level. But you can boost your energy by finding an incubator or by eating the engineers. To do this you spit paralysing acid at them, after which they're not in any state to object to being eaten.

The plot bears quite a similarity to the film *Alien*, and so do the graphics. The ship itself is colourful but fairly undistinguished, but the monster looks about as much like the creature from the film as you could imagine on a Spectrum.

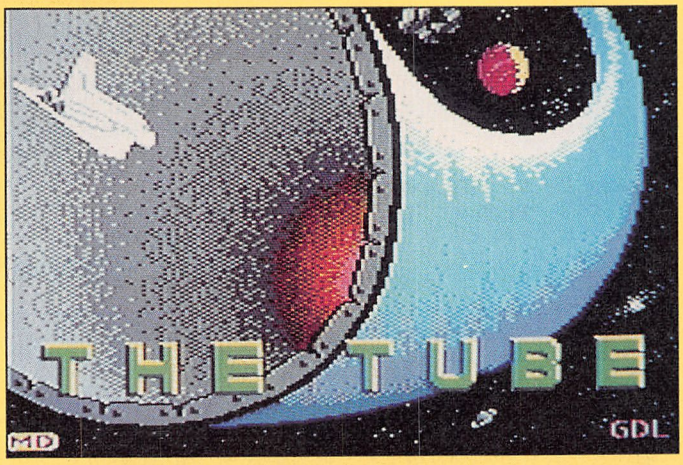
That doesn't mean, though, that the game is anywhere near as exciting as the film. While all the graphics are slick and colourful the action is a bit on the slow side. The spitting action is novel, but it's difficult to aim and the alien itself plods along without looking terribly menacing.

The platform jumping is all fairly routine, with no really difficult obstacles to get past and it's only the sheer size of the playing area that keeps up the interest in the game.

***Survivor* is a competent enough game, but it really needs a bit more pace to stir it up and create a bit of excitement.**

Cliff Joseph

Program *Survivor* **Type** Arcade **Micro** Spectrum **Price** £8.99 **Supplier** US Gold, Units 2/3, Holford Way, Holford, Birmingham B6 7AX.



Tube lines

I don't suppose there's any rational explanation for it, but Spectrum owners are currently enjoying an unexpected boom in classy software.

The latest game in this run of excellence is *The Tube* from Quicksilva, once one of the best and best-known software houses but which has suffered a thin time of it in the last couple of years.

The company believes that *The Tube* will herald a return to greatness. It will take more than one game to launch them on that road, but there's cause for optimism.

The Tube comes with the usual nonsensical justification for the game; a gigantic tube in space which sucks unwary spacecraft into an alien scrapyard. Guess whose ship is going down?

Once in the tube there are three scenarios.

The first is your trip down the tube itself, done in D3, where you must dodge and blast, parasitic lifeforms that will drain your ship of energy.

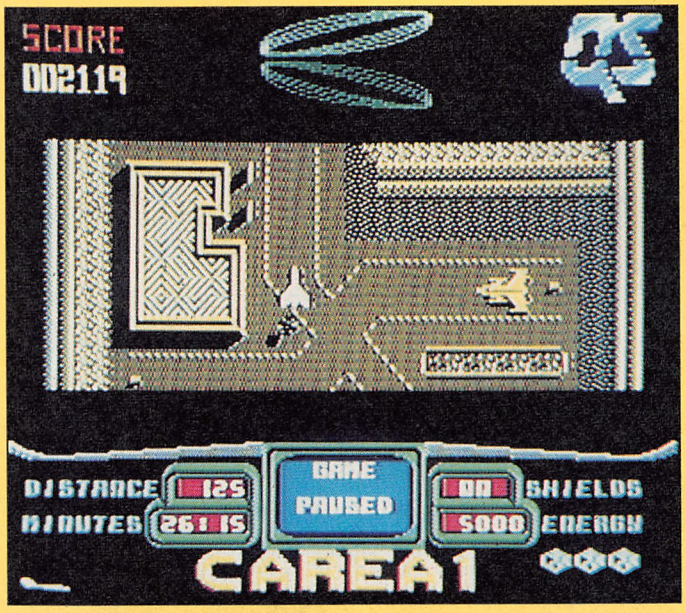
Surviving this section is a doddle; the catch is how much energy you can retain when you emerge at the other end.

This takes you into section two, a kind of *Scramble* scenario in which you must make it past the tube's defence mechanisms designed to weaken any surviving spacecraft.

Then into the third section, the capture area, where derelict ships await the alien equivalent of *Steptoe & Son*.

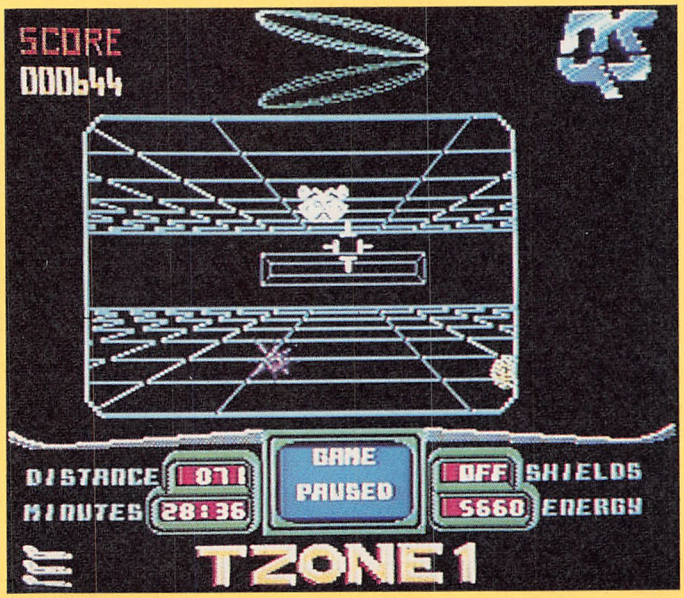
This bit is a vertical scroller from a bird's eye view. You must make your way through the capture area, avoiding the raised embankments (which send you ricocheting like a billiard ball) and dock with other ships.

In order to dock you have to solve a kind of maze puzzle. If successful, you can loot the ship of its energy crystals.



In the CArea (capture area) negotiate your way through the buildings and ramparts seeking to dock with, and plunder, wrecked ships. There's only one way out of this section.

Into the TZone (transfer zone) in which the bouncing weebles drain your energy. The aim is to make it through this section with as much energy remaining as possible.



Energy is the key to the game. You start with a limited amount, and this decreases steadily as you progress. The ultimate aim is to escape from the tube, and robbing the scrap ships is the only way to acquiring more energy.

The graphics are very well done throughout, especially in the second and third sections. On the Plus 2 and 128 machines the program senses the extra memory and loads in extra data. There is some excellent title music, but the sound effects throughout are rather pitiful.

The major fault, though, is the splitting of the game design, always a doubtful tactic. I'd prefer a single, unified, style throughout.

A bit more action in the capture area wouldn't go amiss either.

But there's a lot to like about *The Tube* and if Quicksilva can build on this, it could be the start of something big.

Quicksilva is already at work on the Commodore 64 version which, from early screen shots, does a lot better with the machine's graphics capabilities. If advantage is taken of the 64's sound chip as well, *The Tube* should be worth investigating.

Tape and disc versions will be released in the first week of September priced at £9.25 and £14.95 respectively.

Peter Worlock

Program *The Tube* **Type** Arcade **Price** £8.95 **Supplier** Quicksilva, Victory House, 14 Leicester Place, London WC2H 7NB.

ll's most famous aircraft, the B-24 Liberator.

You play a schizophrenic: both group leader judging targets based on weather, intelligence and enemy objectives, and pilot controlling the bombing raids.

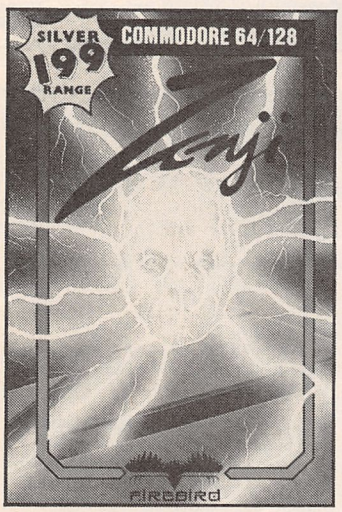
The graphics are good rather than great, but the gameplay is well done, and it fills a gap for wargamers with an interest in air war.

Program *Coin-Op Classics* **Type** Compilation **Price** £9.99 **Supplier** US Gold, Units 2 and 3, Holford Way, Holford, Birmingham B6 7AX.

Compilation comprising the former number one *Kung Fu Master, Breakthru* and *Crystal Castles*. One to buy if you missed any first time round.

Program *River Raid* **Type** Arcade **Price** £1.99 **Supplier** Firebird, 64–76 New Oxford Street, London WC1A 1PS.

Program *Zenji* **Type** Arcade **Price** £1.99 **Supplier** Firebird, 64–76 New Oxford Street, London WC1A 1PS.



Program *Epyx Epics* **Type** Compilation **Price** £9.99 tape, £14.99 disc **Supplier** US Gold, Units 2 and 3 Holford Way, Holford, Birmingham B6 7AX.

Program *The Tube* **Type** Arcade **Price** £9.95 tape, £14.95 disc **Supplier** Quicksilva, Victory House, Leicester Place, London WC2.

See page 42 for comment.

Program *Beam Rider* **Type** Arcade **Price** £1.99 **Supplier** Firebird, 64–75 New Oxford Street, London WC1A 1PS.

Program *The Pay Off* **Type** Adventure **Price** £2.99 **Supplier** Bug-Byte, Victory House, Leicester Place, London WC2H 7NB.

Program *Alice in Videoland* **Type** Arcade **Price** £2.99 **Supplier** Bug-Byte, Victory House, Leicester Place, London WC2H 7NB.

Program *Mrs Mop* **Type** Arcade **Price** £4.99 **Supplier** Reaktor, 68 Long Acre, Covent Garden, London WC2E 9JH.

You've killed aliens, defeated dragons, evil wizards and rescued princes/princesses, driven the fastest cars, broken Olympic records, taken Scunthorpe to the FA Cup Final.

What challenges remain? Reaktor has one for you: become Mrs Mop, staunch defender of clean floors at the dreaded Bounder Hall School. Armed with snap and cans of Gleamo it's time to hit the dirt.

Eminently missable.

Program *Crazy Comets* **Type** Arcade **Price** £1.99 **Supplier** Ricochet, 8–10 Paul Street, London EC2A 4BY.

Program *Mutant Camels 2* **Type** Arcade **Price** £2.99 **Supplier** MAD, 8–10 Paul Street, London EC2A 4BY.

Program *Motos* **Type** Arcade **Price** £2.99 **Supplier** MAD, 8–10 Paul Street, London EC2A 4BY.

Program *Go For Gold* **Type** Arcade **Price** £2.99 **Supplier** Ricochet, 8–10 Paul Street, London EC2A 4BY.

Commodore C16/ Plus 4

Program *Spy vs Spy* **Type** Two player arcade **Price** £9.95 **Supplier** Tynesoft, Unit 3, Addison Industrial Estate, Blaydon, Tyne and Wear NE21 4TE.

See panel for comment.

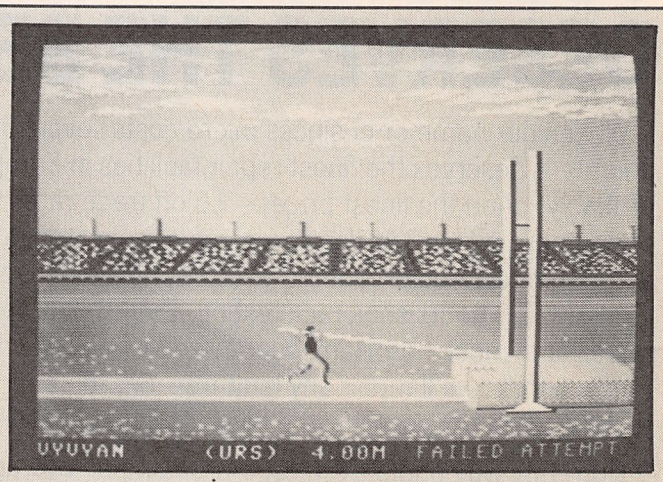
IBM PC

Program *Daily News* **Type** Business simulation **Price** £9.99 **Supplier** Panther Software, 2 Riverway Gardens, The Meadows, Nottingham NG2 3LL.

Program *Company 87* **Type** Business simulation **Price** £9.99 **Supplier** Panther Software, 2 Riverway Gardens, The Meadows, Nottingham NG2 3LL.

Business simulations have always been a good standby for entertainment, but have been increasingly regarded as a teaching tool.

These two programs suffer from



American software house Epyx has produced some good stuff in the past, so a compilation of Epyx games should be an interesting proposition. The advertising boasts, 'four classic games' – to which everyone in the office replied, 'three classic games and *Breakdance*', which just about sums it up.

The package's full quota is: games are *Impossible Mission, Summer Games, Pitstop II* and *Breakdance. Impossible Mission* is probably my favourite out of the four. It's basically a platform game set in the stronghold of a mad scientist.

As well as avoiding his robot guards and locating the passwords that are hidden in the various rooms you've also got a comuter code that has to be cracked. What makes it stand out from all those other platform games is the superb graphics and animation and the atmospheric voice synthesis.

***Summer Games* is one of the best of the sports simulations that swamped the shops during the last Olympics. The game included standard joystick-thrashing events such as swimming, relay racing and the 100 metre dash, but there are others, diving, pole vault, gymnastics – which require a bit more skill and timing in order to succeed. There are eight games in all, and they've been well chosen to provide a bit of variety rather than just giving you a sweaty joystick.**

***Pitstop II* is a version of the coin op game, and one of the few games around that really merits the description 'classic'. It features six different racing tracks from all over the world, and although it's quite an old game by now, it's still one of the best racing simulations around.**

Finally, there's *Breakdance* – the software equivalent of all those awful, cheap, rappin' movies that nobody went to see. It's brash, it's loud, and it's extremely daft. You jiggle the joystick in order to get your on-screen figure flapping around on the floor, making moves like the Gyro Moonwalk and Backspin. What can I say except that the other games on the tape are so good that the compilation is still worth buying despite *Breakdance*.

Cliff Joseph

Program *Epyx Epics* **Type** Compilation **Micro** C64 **Price** £9.99 tape, £14.95 disc **Supplier** US Gold, Units 2/3 Holford Way, Holford, Birmingham B6 7AX.

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limited use of graphics, and are too poorly documented for teaching purposes. That said, *Company 87*, in which you become a computer manufacturer, is entertaining enough.

Program *ACE* **Type** Flight Simulator **Price** £19.95 **Supplier** Cascade Games, 1-3 Haywra Crescent, Harrogate HG1 5BG.

MSX

Program *Streaker* **Type** Arcade **Price** £1.99 **Supplier** Bulldog, 8–10 Paul Street, London EC2A 4BY.

Spectrum

Program *Book of the Dead* **Type** Arcade **Price** £14.95 (disc) £8.95 (cassette) **Supplier** CRL, 9 Kings Yard, Carpenter's Road, London E15 2HD.

Program *Back To The Future* **Type** Arcade **Price** £1.99 **Supplier** Firebird, 64–76 New Oxford Street, London WC1A 1PS.

Program *Header Reader* **Type** Utility **Price** £1.99 **Supplier** Coxsoft, 31 Fulwell Avenue, Barkingside, Ilford, Essex (mail order only).

Program *Roadrunner* **Type** Arcade **Price** £8.99 **Supplier** US Gold, Unit 2/3 Holford Way, Holford, Birmingham B6 7AX.

Program *The Tube* **Type** Arcade **Price** £8.95 **Supplier** Quicksilva, Victory House, Leicester Place, London WC2.

See page 42 for comment.

Program *Streaker* **Type** Arcade **Price** £1.99 **Supplier** Bulldog, 8–10 Paul Street, London EC2A 4BY.

Program *Omega One* **Type** Arcade **Price** £1.99 **Supplier** Mastertronic, 8–10 Paul Street, London EC2A 4BY.

Program *Motos* **Type** Arcade **Price** £2.99 **Supplier** MAD, 8–10 Paul Street, London EC2A 4BY.

Program *Coin-Op Classics* **Type** Compilation **Price** £9.99 **Supplier** US Gold, Units 2 and 3, Holford Way, Holford, Birmingham B6 7AX.

See Copmmodore 64 for comment.

Program *Survivor* **Type** Arcade **Price** 28.99 **Supplier** US Gold, Units 2 and 3, Holford Way, Holford, Birmingham B6 7AX.

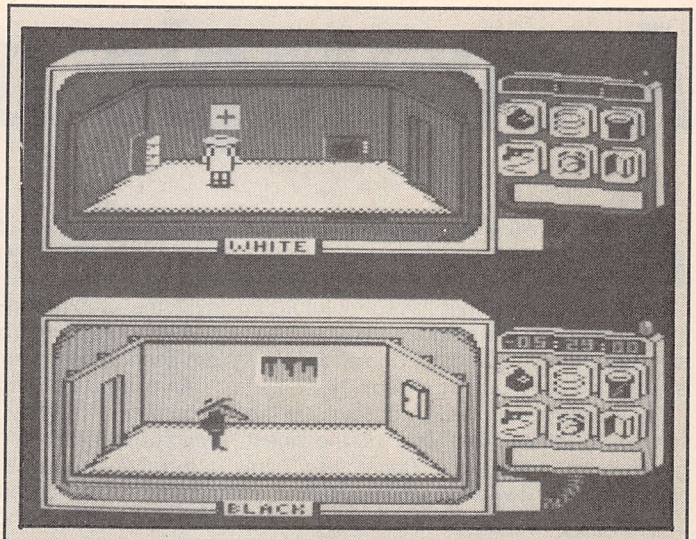
See panel for comment.

CHARTS

Top Twenty

1	(2)	Paperboy	Elite
2	(3)	BMX Simulator	Code Masters
3	(5)	Run for Gold	Alternative
4	(1)	World Class Leaderboard	Access/US Gold
5	(4)	Milk Race	Mastertronic
6	(10)	Gauntlet	US Gold
7	(7)	Barbarian	Palace
8	(8)	Four Great Games	Microvalue
9	(19)	Game Over	Imagine
10	(6)	The Last Ninja	System 3
11	(11)	I Ball	Firebird
12	(9)	Football Manager	Addictive
13	(–)	Kik Start 2	Mastertronic
14	(12)	Leaderboard	Access/US Gold
15	(–)	Road Runner	US Gold
16	(15)	Head over Heels	Ocean
17	(18)	Feud	Bulldog
18	(16)	Konami's Coin-op Hits	Imagine
19	(13)	Living Daylights	Domark
20	(–)	Destructo	Bulldog

All figures compiled by Gallup/Computer Trade Weekly



This is something of a surprise release from Tynesoft. I remember a couple of years or so ago, when *Spy Vs Spy* was released for the C64, there was some doubt as to whether it would even be converted on to the Spectrum because it was so complicated. And now here it is on the BBC machines, not to mention the Acorn Electron and Commodore 16!

The game is based on the somewhat crazed goings on in the *Mad* magazine strip of the same name. In it, two spies (one dressed in black, the other in white) do little else apart from setting ludicrously violent traps for each other as they attempt to steal each other's secrets.

The game follows the same format and is set within an embassy where the two spies are racing to locate various documents and escape with them.

The complicated thing about the game is the Simulvision screen display. This splits the screen in half, with a separate display for each player showing the rooms that they currently occupy.

You can play against the computer or another player, and Simulvision allows both players to control their spies together (no waitng to take turns).

As well as dashing from room to room in search of the documents both spies also control a Trapulator. This allows them to set the traps which are much of the game's fun.

You can set simple things like time bombs, or there are slightly more warped traps like the bucket of water or the spring which sends your opponent shooting across the screen. Or you can be even more basic and just punch each other about if you both arrive in the same room at any point.

You're playing against a time limit, and each trap either has a time penalty, or subtracts from your energy level. If you're lucky, you may be able to find 'remedies' which protect you from some of the traps, otherwise you may find yourself floating up to spy heaven.

A lot of games based on cartoons or cartoon strips have been disappointing because they've failed to capture the magic energy of the originals, but *Spy Vs Spy* manages to capture the feel of the comic strip, making it one of the more successful games of its type, it's probably also one of the best games released for the Electron and C16 for some time.

Cliff Joseph

Program *Spy Vs Spy* **Type** Arcade **Micro** Master Compact, BBC, Electron, C16 **Price** £9.95 tape, £12.95 BBC/Master disc **Supplier** Tynesoft, Unit 3, Addison Industrial Estate, Blaydon, Tyne and Wear NE21 4TE.

A strategic plea

As an avid wargamer and enthusiast of almost anything strategic – I would propose that this is one of the few classes of software that have any future in the home computer market. It is now clear to me that the standard of popular software is very close to reaching a peak.

For example, I am led to believe, by the computing press, that one of the finest games lately was *Enduro Racer*. Now I am not saying that it wasn't but if you take that game as an example of the finest modern software then, although it is well programmed and extremely playable, it scores zero for originality, being a conversion from an arcade machine.

This is true of most recent releases, ie, they are competently programmed, but are not original, and do nothing to advance the industry from its current stale situation. As one hardened computer hack once said: there are only five or six different game types, all the rest are just variations.

I am not really blaming anyone for the drying up of new ideas. After all it was inevitably going to happen at some stage, but I would propose that strategy games offer an alternative, or at least a stop-gap. I am referring to those games which give you a scenario and a game system, and then leave the rest largely up to you – this obviously gives the game a longer life when compared to the "find, unlock, rescue, escape" arcade adventures.

Also, at this point, I should just like to say that I do not feel that wargames in any way glamorise conflicts, and indeed I have learnt much from the excellent historic notes which accompany many games which has made me even more opposed to the concept of fighting.

The immense attraction of games of this sort is that their quality is not so reliant on their difference from other games. Indeed it would be perfectly acceptable to have several companies, using different game systems, publishing each of their games with the same control method, but a different scenario each time.

An example of this is the three excellent programs written by the superb R T Smith, which use basically the same control system (although in each game it has been refined with excellent additions) but have different settings and scenarios.

The joy of wargames is that, of course, there is an objective, but the user is allowed many different ways in which to accomplish its goal, which makes a computer game slightly more lifelike, but more importantly – more enjoyable.

The serious user (the intelligent owner, who doesn't just want a home amusement arcade) is also able to become more involved in the entertainment.

For example, in wargames it soon becomes clear that the only way to succeed in most games is to realise that the square graphic counters on the screen actually represent live people, and to treat them accordingly, ie, let them rest when tired, and not send them into suicide situations unless there is no other alternative.

I become incredibly annoyed when users whilst playing a game just abandon relatively weak characters to die, because they are of no real use to them. I realise it is only a game, but surely such an attitude shows rather a sick and inhumane outlook in real life.

So to sum up, I make a call to software houses to encourage intelligent gaming, for a good strategy game requires much thought. It is a vast un-tapped market, with the greatest of potential.

P Tebbutt

Puzzle No 270

Tom, Dick, and Harry were comparing telephone numbers. By a remarkable coincidence each of the three numbers consisted of the same four digits, though of course differently arranged. Even stranger was the discovery that Harry's number was also equal to the sum of Tom's number and Dick's number.

For example, the numbers could have been

```
0459 +        4599 +
0495    or    4995
----          ----
0954          9594
```

In fact, neither of these were the numbers referred to as the correct ones do not have any digit in any given position in more than one number. (In the numbers given, there is a zero in first position in all of the first set of numbers, and, for example, a '5' as second digit in two of the numbers in the second set).

Can you determine what the three numbers were?

Solution to Puzzle 265

The smallest possible set that has a spot count in excess of one million is one with a highest double of 125. This set would have 8001 pieces and 1000125 spots.

The program listing shown generates sets of dominoes, starting with a maximum double value of double one. It then counts the number of pieces and the total number of spots (line 40). After each operation, the value of the piece with the maximum spot value is incremented by one, to simulate the set of the next highest order.

At each stage, the results are printed out, until the time that the spot value first exceeds one million, at which time the program stops.

```
10 MAX=1:N=0
20 PIECE=0:SPOT=0
30 FOR A=N TO MAX:FOR B=0 TO A
40 PIECE=PIECE+1:SPOT=SPOT+A+B
50 NEXT:NEXT
60 PRINT MAX;" ";PIECE;" ";SPOT
70 IF SPOT>1000000 THEN STOP
80 MAX=MAX+1:N=MAX:GOTO 30
```

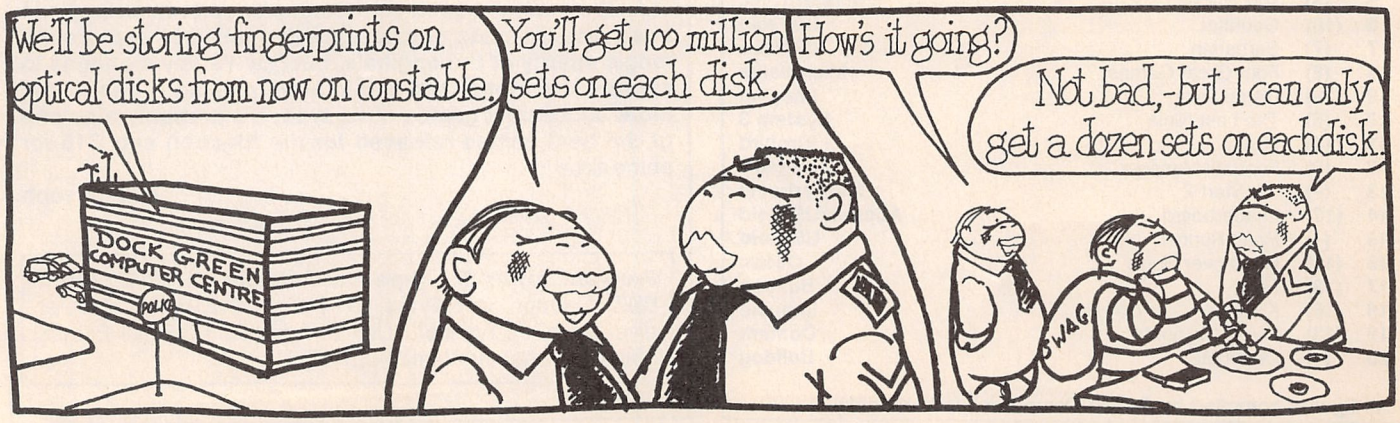
Winner of Puzzle 265

This week's winner is Peter Davies, Monybent, Station Road, Bentham, Lancaster LA2 7LF, who will receive £10.

Rules

The closing date for Puzzle 270 is September 2.

HACKERS



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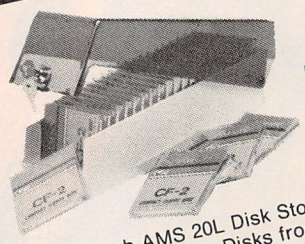

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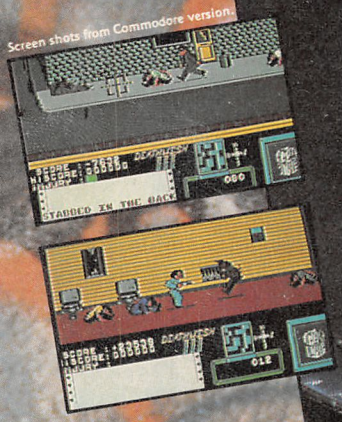

DEATH WISH 3 .....

The big screen classic, in which modern day vigilante Paul Kersey wreaks his own form of revenge on the scum and filth that terrorise the streets of modern day New York. For too long the gangs have run wild, un-challenged in their peverted attacks and violations of innocent citizens. Muggings and robberies have become a daily feature of city life. So when the chief of police turns a blind eye you decide to take over where the law left off.

Strap on your famous 475 WILDEY MAGNUM, turn your-self into a one man fighting force armed with pump action shotgun, machine gun and rocket launcher. Now turn the tables on the punks and creeps who certainly know how to dish out the violence but may not be so good at being on the receiving end.

Screen shots from Spectrum version.

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It's Down To You To Stop Them... You Are Bronson

Gremlin Graphics Software Limited, Alpha House, 10 Carver Street, Sheffield S1 4FS. Tel: 0742 753423

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